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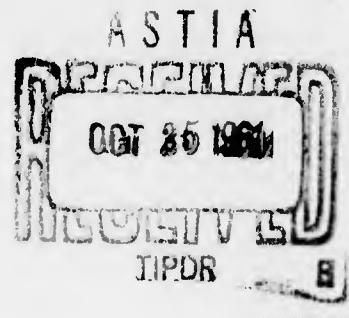
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Study of the Bases for Changing Food Attitudes



Period: 15 March 1958 - 15 September 1960

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QUARTERMASTER FOOD AND CONTAINER INSTITUTE FOR THE ARMED FORCES  
Research and Engineering Command  
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Department of Sociology, University of Chicago, Chicago, Ill.  
SOCIAL BASES OF FOOD ATTITUDES IN THE MILITARY ESTABLISHMENT, by Herbert Hamilton.

February, 1961. 129 pp.-10 graphs-31 tables (Contract DA19-129-QM-1117), Project No. 7-84-15-007, Food Acceptance Study. Unclassified report.

This report presents the findings of a survey investigating relationships between soldiers' food attitudes and a series of social psychological and group factors.

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CONTRACT RESEARCH PROJECT REPORT

QUARTERMASTER FOOD AND CONTAINER INSTITUTE FOR THE ARMED FORCES, CHICAGO  
QM Research and Engineering Command, U. S. Army, QM Research and Engineering  
Center, Natick, Massachusetts

University of Chicago  
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Chicago, Illinois

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Official Investigator: Peter H. Rossi  
Collaborators - Herbert Hamilton and  
David Gottlieb

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TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
I. Introduction	
1. Background of the Study	1
2. Procedures	3
A. Group Effects	3
B. Collection and Preparation of Data	21
II. Research Findings	
1. Commitment to the Army and Mess Preferences	28
2. Military Task, Accessibility to Civilian Eating Facilities and Mess Preferences	40
3. Differentiating Characteristics of Training vs. Permanent Units	44
A. Esprit, Army Favorableness and Mess Preferences	46
B. Attitudes Toward NCO's, NCO Composition, Length of Service and Mess Preference	50
4. Attitudes Toward Army Food, Army Cooks and Army Mess Facilities in Relation to Food Preferences	56
5. Situational Factors Relating to Food Preferences in the Military Establishment	67
III. Conclusion	73
Appendixes	
A. Technical Appendix	81
B. The Sample	96
C. The Questionnaire	98
D. Scales	121
E. Regression and Covariance Analysis	127
References	128

**CHAPTER I**

**INTRODUCTION**

## BACKGROUND OF THE STUDY

The research reported in this memorandum constitutes the third phase of a program addressed to the general problem of identifying and investigating social-psychological and group factors associated with variations in food preferences among members of the armed forces.

Phase I consisted of an extensive survey of the existing literature on the human, as distinguished from the physical, factors relevant to food acceptance and preferences in the military establishment. The results of this first phase were summarized in terms of a selected, annotated bibliography and presented in Project Report # 1. Phase II included a series of exploratory field studies designed, on the one hand, to clarify and specify preliminary hypotheses suggested by an examination of the literature, and secondly, to generate additional hypotheses based on intensive interviews with members of the armed forces in a fairly wide range of military situations. This led to the formulation of specific hypotheses relating several social and social-psychological variables to military food acceptance and attitudes. Among the factors considered in this connection were the following:

- (1) Commitment and general favorableness to the Army, including Army career intentions.
- (2) Access to non-military food sources.
- (3) Types of military duties.
- (4) Attitudes toward those agencies responsible for the preparation of food.
- (5) Generalized attitudes toward Army food, as well as expectations and anticipations of food varying with different military situations.

An extensive description of these variables and the propositions pertaining to them is contained in the second progress report of the project. (8)

The third phase of the program had as its goal the testing of the hypotheses set forth in the second report. In the first part of this phase a pre-test was carried out on the basis of which the questionnaire and administrative procedures were refined. The next aspect of this phase consisted of executing a large-scale survey of soldiers in 23 Army units located at 7 installations. The units and installations were selected to provide personnel from a range of military situations required for testing the hypotheses under study. Units varying in terms of primary mission (combat or support), proximity to cities (isolated or accessible), and type of activity (training or permanent stations) were included in the survey. A central feature of the research undertaking was the fact that the sampling method employed allowed for the selection of intact military units. This made it possible to investigate both the manner and the extent to which soldiers' food attitudes and preferences varied with certain aspects of the social organization and normative climate of the military groups sampled. The present report is concerned with describing the findings that were obtained in connection with this study.

#### PROCEDURES

The main purpose of this report is to present the research findings of a survey concerned with soldiers' food preferences. Since the results themselves would have limited value outside the context in which they were obtained and analyzed, another objective must be to provide information on the rationale for the study, the methods of analysis employed, the procedures of data collection by which the findings were obtained, and the problems encountered in carrying out the survey.

#### Group Effects

A number of other studies have reported research findings bearing on the general problem of human factors in military food acceptance and preferences. Attention is directed to relevant work in this area reported by the Quartermaster Research and Engineering Command. The Quartermaster Field Evaluation Agency at Fort Lee, Virginia, has conducted an investigation of the relationship between general attitudes toward the Army and food preferences, the results of which lend support for the position that this relationship warrants further study. (1) The Quartermaster Food and Container Institute has collated and analyzed data obtained from an extensive series of food preference studies conducted over a period of several years. (13) In addition to providing basic methodological and substantive information on the results of food preference studies employing the 9 point hedonic scale, the work referred to also provides data on variations in preferences among personnel of diverse social backgrounds, e.g., age, education, region of origin, size of town of

origin, as well as data on variation in preference associated with respondents' length of military service.

The studies mentioned thus far have provided information on how individual attributes of soldiers relate to their food preferences. However, personnel at military installations tend to be mixed rather than homogeneous on the basis of those personal characteristics important to food preferences or to the acceptance of food innovations. Therefore data on how individual attributes of soldiers relate to their food preferences has been of only limited aid in Army menu planning or the planning of food innovation. The most widely accepted practice, under these circumstances, has been to select foods and plan menus on the basis of the average preference of the entire Army population.

An alternative approach to menu planning might be to classify the different major types of Army units in terms of the average of individual characteristics of their memberships (e.g., concentration of younger soldiers at basic training posts). Then menus or attitude-change attempts for these units could be varied depending on whether their membership tended to be younger or older, of primarily rural or urban backgrounds, etc. An early and extensive survey of human factors associated with feeding in the military establishment is relevant in this connection. The Schwerin report found important differences in food attitudes and food consumption among Army units of varying civilian background characteristics, morale and basic type of military function. (14)

However, shifting the unit of analysis from the individual to the group is not quite as simple as it sounds. In the first place, one cannot safely assume that the relationship between any given characteristic and food preferences will be in the same direction both on the individual and the group level. For example, liking for vegetables might be positively associated with age in individuals, yet when a number of younger or older persons are grouped together they might tend to be no more or less favorable to vegetables than groups of mixed ages. A less hypothetical example from another satisfaction area is reported by Stouffer. (15) During World War II, he found that on the average, satisfaction with promotional opportunities in the Army regularly increased with rank, but units (e.g., MP's) with very low average ranks were more satisfied with promotional opportunities than units having high average ranks (e.g., Army Air Force).

Such examples suggest that caution is in order when one seeks to generalize from individuals to groups. The key word here is groups, as contrasted with mere aggregates. Groups are composed of persons interacting frequently with one another in some specific context. Furthermore, it is typical of people in repeated interaction that they generate bonds of mutual attachment and develop generally accepted ideas as to how group members are expected to behave, as well as how they should perceive and evaluate events that are relevant to the joint activities and interests of the group. It is these aspects of group life, along with a number of others as well, that can make group members behave on the average in a manner other than what would be predicted from evidence about them as individuals. (10)

The possibility that the very same characteristic may lead to diametrically opposed consequences in terms of individuals and groups has already been suggested. Probably a more commonly observed situation, however, is where the two sets of consequences move in the same direction. For example, in the present study it was found that soldiers who had a high opinion of their NCO's were more favorable on the food preference measures than soldiers with a low opinion of their NCO's. Furthermore, Army units containing more soldiers with a high opinion of their NCO's were generally found to have more favorable average food preferences. Can we conclude from this that the differences among the units are merely a result of varying concentrations of soldiers who like their NCO's? At this point it would be wise to recall the earlier comments regarding the distinction between a group and an aggregate. Since army units are comprised of soldiers in rather frequent interaction it might be expected that bonds of mutual attachment and group norms, as well as other features of human groups, would develop within them. This suggests the possibility that in units with a predominance of soldiers who like their NCO's a group norm might be present making for both widespread favorableness toward NCO's and an increase in favorableness of food preferences accompanying such a group sentiment. In other words, group sentiment regarding NCO's might be contributing to the observed difference. Thus we see that a "group effect" can often result in adding to the strength of the relationship observed among individuals.

In the example regarding attitudes toward NCO's and food preferences the group effect and the individual effect operated independently of each other. Units were found to vary considerably

in terms of the proportion of men liking their NCO's, but regardless of these differences among units, men who liked their NCO's were found to be uniformly more favorable on their preferences. Similarly, on the group level, increasing unit proportions of soldiers liking their NCO's were associated with more favorable preferences, and within units this was true both of men who did and those who did not like their NCO's.

In other cases, this independence may not hold. Consider the well-known finding that groups with "cooperative" norms are more productive in group tasks than groups with "competitive" norms. Does this mean that cooperative individuals are generally more productive than competitive individuals? Yes (when they are in cooperative groups) and no (when they are in competitive groups). Hence the relative productivity of cooperative vs. competitive individuals depends on whether they are in cooperative or competitive groups. (2) Similarly, the relative productivity of groups depends partly on whether their members as individuals tend to cooperation or competition. In this sense the group and individual competitiveness-cooperativeness variables are interdependent and can be said to "interact."

Thus far we have considered several examples of what is meant here by group effects and have suggested some of the ways in which such effects might have an impact on mess preferences. The principal methods of the investigator seeking to study such effects have only been implied in the above discussion, however, and require some explicit attention at this point.\* Note first of all that in the various examples cited

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\*The treatment of group effects in this report is based upon the earlier work of Paul Lazarsfeld, Peter Blau and James A. Davis. See the technical appendix and references (2) (3) (4) (5) (11) (12).

information was available concerning both individuals within specific groups and the composition of these groups. Most important, the information about both individuals and groups was obtained for the very same characteristic. For example, the satisfaction of NCO's and non-NCO's with promotional opportunities was compared within units varying in the average rank of its members. This element of working with the same characteristic on both the individual and the group level is the cornerstone of the approach to studying group effects employed in this report. Before elaborating on the implications of this point for the analysis of group effects it should be noted that there are also important implications for the sampling methods to be employed in a study that seeks to utilize this approach. While most previous research in the area of food preferences among military personnel have been based upon the sampling of individuals within installations and units the method of studying group effects to be utilized here calls for the selection of intact military units. Sampling in terms of a cross section of individuals is appropriate where the primary research goal is to make inferences concerning individuals alone but where interest is centered upon individuals within the context of their social relations and social environments clearly another method is called for. The type of sampling in which groups are selected and responses are obtained for all, or the majority, of the members of these groups is the method appropriate to studying the impact of social environments. Accordingly, in the present study a sampling design encompassing both groups and individuals, i.e., individual soldiers within the context of their military units was employed.

The kinds of data needed for getting at group effects and the general strategy for obtaining it should now be clear. What remains is to translate some of the considerations treated explicitly or implicitly in the examples of group effects already discussed into the kind of formal analysis to be utilized in this report.

Consider a hypothetical case where average expressed preference of men in a number of groups for a variety of meats is the dependent variable and some particular characteristic, say marital status, is the independent variable. The independent variable (marital status) may first be considered on an individual level, where men are classed into married (A) or unmarried ( $\bar{A}$ ). If there is no difference in the average meat ratings of married as compared to those of unmarried men, the independent variable (henceforth referred to as I.V.) can be considered unrelated to the dependent variable (henceforth referred to as D.V.) on the individual level. On the other hand, married men may rate the meats reliably higher; in this case the two variables are related on the individual level.

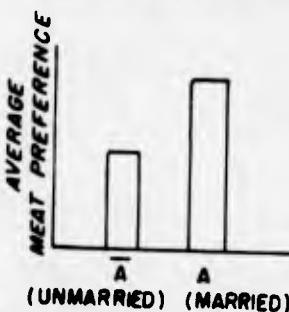
Turning now to the group level, one may consider the two parallel possibilities, first where groups with varying proportions of married men would not differ in their average preferences for meats, and second where groups with higher proportions of married men rate meats higher. These alternatives for individuals and groups can be represented in terms of histograms. (See A-D).

Or, again, these alternatives at the individual and group levels can be represented by graphs. (See E-H).

A. NO DIFFERENCE  
AMONG INDIVIDUALS



B. HIGHER MEAT PREFERENCE  
AMONG MARRIED INDIVIDUALS



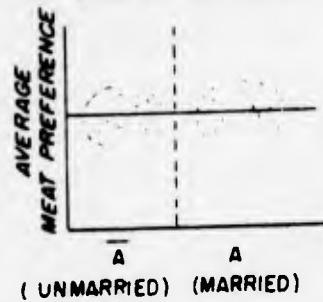
C. NO DIFFERENCE  
AMONG GROUPS



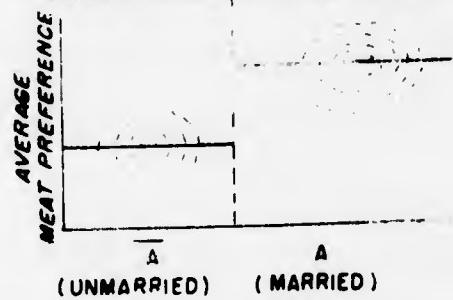
D. HIGHER MEAT PREFERENCE  
AMONG GROUPS HAVING PROPORTIONATELY  
MORE MARRIED MEN



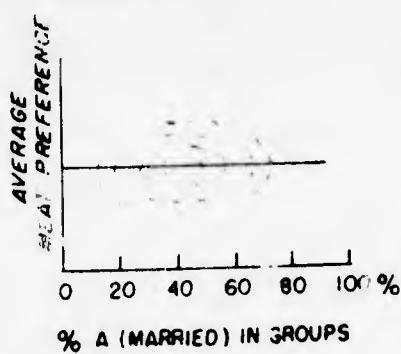
E. NO DIFFERENCE  
AMONG INDIVIDUALS



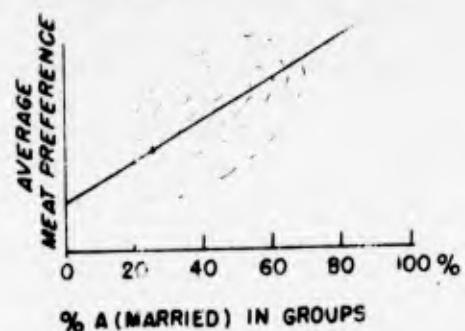
F. HIGHER MEAT PREFERENCE  
AMONG INDIVIDUALS WHO ARE MARRIED



G. NO DIFFERENCE  
AMONG GROUPS



H. HIGHER MEAT PREFERENCE  
AMONG GROUPS HAVING PROPORTIONATELY  
MORE MARRIED MEN

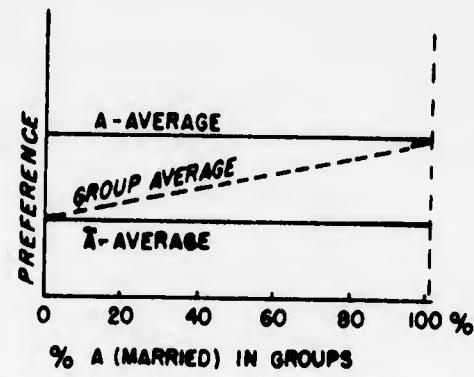


As already emphasized, our interest centers in the simultaneous analysis of individual and group relationships and effects. This should be clarified by the following graphs. Chart I represents one set of results of interest that may arise when this approach is utilized. Note that here the group and the individual relationships are presented on the same graph. Consider the dashed line describing the way in which the over-all average group preference varies with the proportion of A in the groups. This shows preference increasing with greater proportion of A in the group. There are also two undashed lines, one describing the average meat preference for the A's and the other describing the average meat preference for the  $\bar{A}$ 's, that show the A's rate meat higher than the  $\bar{A}$ 's. Note now, however, the difference between the A's and the  $\bar{A}$ 's is being compared taking into consideration, i.e., controlling for, the composition of the groups of which the individual A's and  $\bar{A}$ 's are members. On the basis of this comparison it appears that the difference between the A's and the  $\bar{A}$ 's is constant across groups of varying composition in terms of A. Furthermore this same method of stratifying individuals simultaneously on the basis of their personal attribute (A or  $\bar{A}$ ) and the composition of the group (% A), and then obtaining measures on a dependent variable for these categories means that the variation in the dependent variable with variation in the group composition (% A) can be examined controlling for the individual attribute (A or  $\bar{A}$ ). For this purpose we look at the slope of the two lines (i.e., the way in which the lines increase or decrease with variation in the group composition). In the hypothetical case at hand

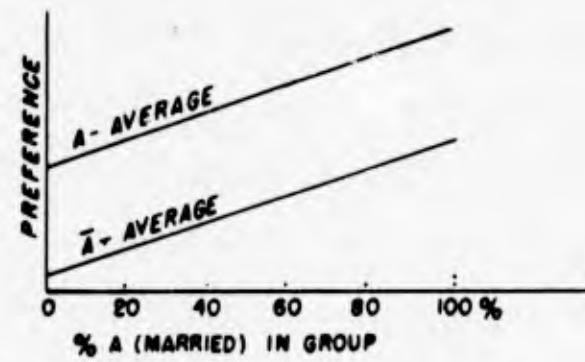
the lines for the two categories of individuals are parallel to the horizontal axis, indicating that when the individual characteristic is held constant average meat preference no longer increases with greater proportions of married men. In other words, the relationship between the group proportion and the over-all average preference shown by the dashed line can be considered a result of the individual level association between marital status and preference. It is merely because there are different proportions of married men in the groups that this relationship is observed. Considering persons alike in terms of marital status, however, the proportion of married men in the group contributes no effect in terms of preference. The important thing to note is that this type of situation can be thought of as directly corresponding to what might be expected if, according to the earlier argument, one were dealing with aggregates rather than groups. Where data take this form - or some reasonable approximation to it - let us establish the convention of referring to the situation as Type I.

However the same fundamental approach is applicable to instances that correspond to what have been referred to as group effects. For example, men eating meat together in groups might tend to be more favorable to meats than when they eat alone, insofar as seeing others enjoying meat may increase their preference for it. This hypothetical example can be illustrated by the following graph which shows both married (A) and unmarried ( $\bar{A}$ ) men as having higher preferences in groups with higher proportions of men who enjoy meats more (i.e., married men).  
(Graph J) In this case, not only is there an individual effect of marriage on meat preference but also there is a group effect such that

I.



J.



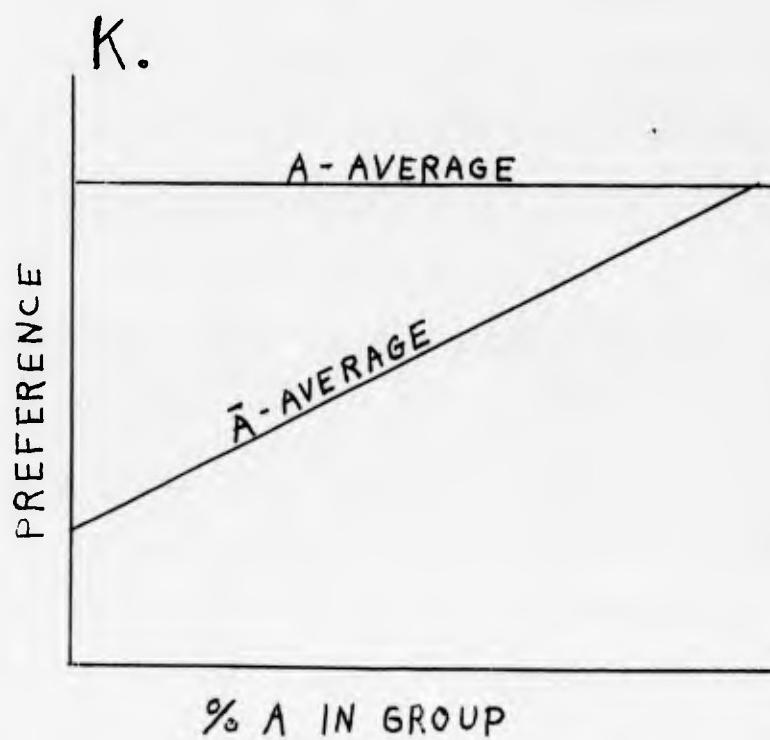
having proportionately more married men in a group leads to both married (A) and unmarried ( $\bar{A}$ ) men expressing higher preferences for meats. This form of situation also corresponds to the previously cited example of liking for NCO's and preference. It will be referred to subsequently as Type III.\*

On the other hand, some men in groups may behave differently depending on whether they are with their own kind or not. For example, a bachelor may behave differently in the company of married men than he normally would when alone or when with other unmarried men. That is, the composition of a group can effect the behavior of one class of individuals in the group, but not others. In terms of the example of meat preferences among married and unmarried men, such a compositional effect could be shown by the following graph which will be referred to henceforth as Type VII. (Graph K)

In this case, the marital composition of groups has no effect on married men's (A) meat preferences, which generally average somewhat above those of unmarried men. However, while unmarried men's ( $\bar{A}$ ) preferences generally average less than the

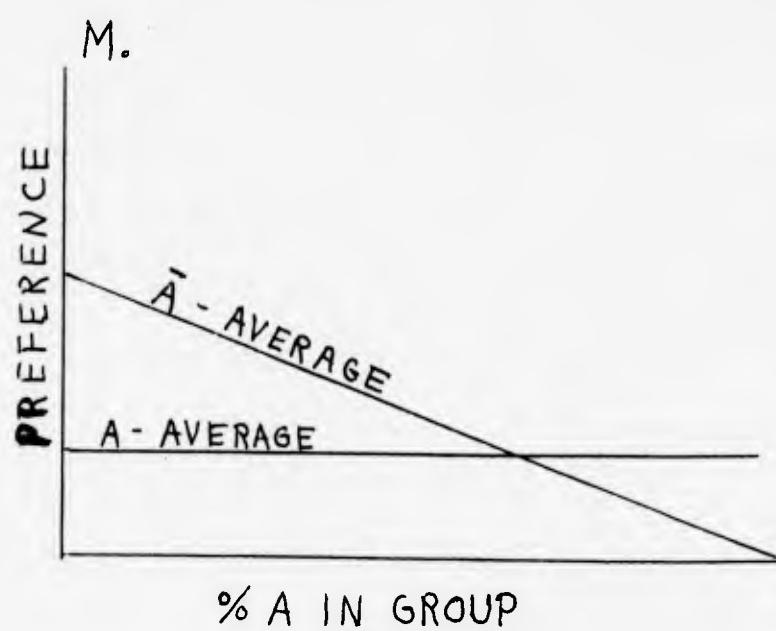
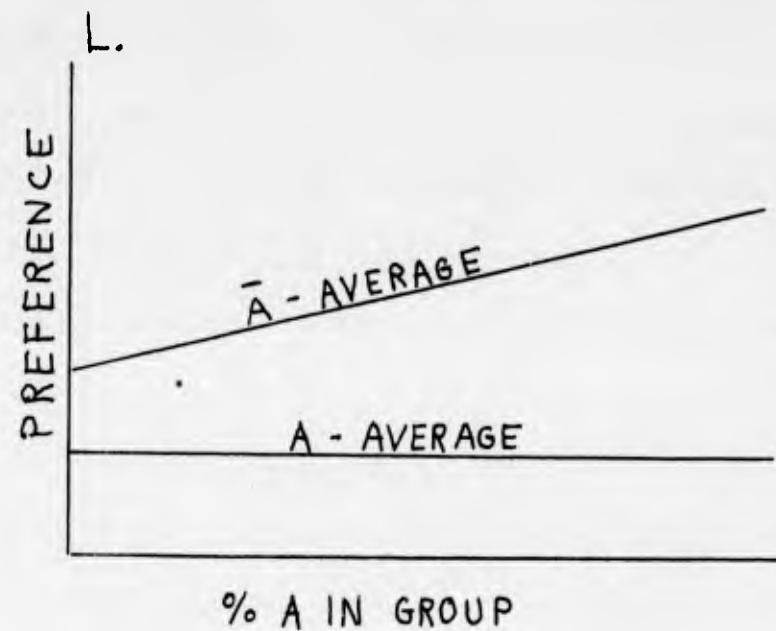
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\* The numbering of types does not follow the sequence of discussion in the present section but rather is based upon formal criteria discussed in greater detail in the technical appendix.



preferences of married men, single men are effected strongly by increases in the proportion of married men in the group while married men are not. As a result the difference between married and single men narrows with increasing proportions of married men until at the higher ranges no appreciable difference is observed. This type represents what was referred to earlier as a conditional group effect and corresponds to the example of competitive and cooperative individuals within competitive and cooperative work groups.

Data of the kind being considered may take a number of other general patterns in addition to those already noted. More detailed attention is given to this problem in the technical appendix, where definite criteria for distinguishing these types are also discussed. In addition to those already considered several others that will be encountered in the body of the report can be briefly noted at this point. The first graph below (Graph L) is referred to as a Type VI and is similar to the previously considered Type VII since in both cases the group effect is observed for only one type of individual. In the Type VII case this leads to a situation where the individual difference is observed only under certain conditions, while in the Type VI case the individual difference varies but holds across the full range of group compositions. Another similar possibility is shown by graph M (Type VIII), only here a group effect on one kind of individual is accompanied by a situation where the direction of the individual relationship varies with group composition. Following this we have a Type II situation

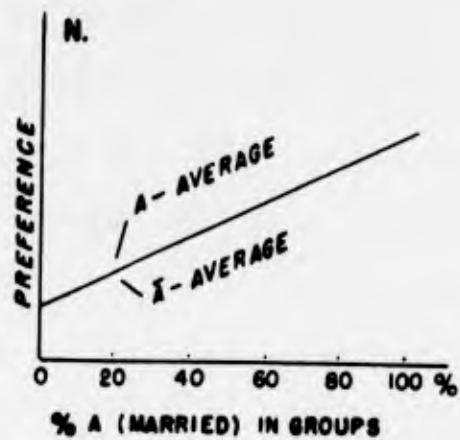


(Graph N) where an appreciable group effect is observed among both A's and  $\bar{A}$ 's but interestingly enough these two kinds of individuals show no difference when group composition is held constant. The final possibility considered here, appropriately labelled Type O, (Graph O) describes a situation where preference shows neither a group composition effect nor an individual difference.

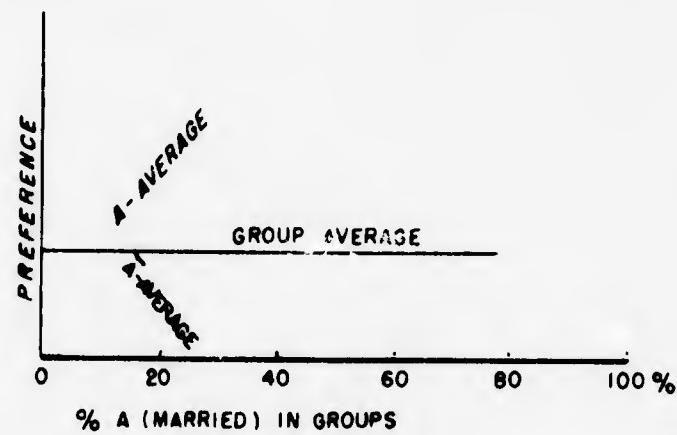
Before leaving this section, it is important to emphasize, with specific attention to the subject matter of this research, the kind of variables that are amenable to treatment in terms of compositional analysis. The key point to recognize in this regard is that certain classifications of military units serve to categorize both the units and the individuals within them in an identical fashion. This is the case, for example, with such central variables employed in this study as type of military activity or role (e.g., combat, support, permanent, training) and accessibility to civilian feeding places as measured by the proximity of the respective military installations to a large city. Unit classifications such as just noted imply that all, or virtually all, of the men within a unit can be classified identically on the basis of unit characteristics.\* With respect to variables of this type the

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\*Actually by including training and combat classifications in the list we have included examples that involve only approximations to the type of relationship between individual and group measurements under consideration. Both in the case of training and combat units the unit or group classification defines the great majority of soldiers within the unit in accordance with the kind of unit, but not 100 per cent of them. In training units, for example, virtually all of the soldiers within these units are classifiable as trainees, but there are also a very small number of NCO's correctly classifiable as permanent personnel. Similarly, within combat units there exists a small fraction of personnel whose principal activity probably fits into the category of administrative or support rather than combat functions. These instances are considered together with the "purer" instances because for practical purposes the small



O.



analysis of group differences and individual differences are either identically or essentially the same thing and can be carried out simultaneously either by means of the analysis of group or unit differences. The method employed for this purpose in the present study utilized unit differences.

Regarding a number of other variables of interest, however, it is possible to distinguish individuals of varying characteristics within different kinds of groups. Thus we can examine soldiers of varying commitment to the Army within units with varying proportions of members with high commitment. It was in this more typical situation that compositional effects analysis was employed.

#### Collection and Preparation of Data

##### The Sample and the Development and Administration of the Questionnaire

The data collection stage of the research was carried out in two phases. Phase I involved the development of the questionnaire and a pre-testing of the validity and clarity of the instrument, the results of which were incorporated into the formulation of the final schedule utilized in Phase II. (See Appendix C). As revised, the questionnaire consisted of a 23 page self-administered schedule including 49 attitude and social background items and a series of 8 mess food and 6 C ration hedonic preference scales.

Phase II, comprising the selection of sites and the administration of the questionnaires, was conducted at seven Army installations:

Fort Meade, Maryland; Fort Holabird, Maryland; Fort Belvoir, Virginia;

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number of such persons within the units does not allow for the kind of statistical comparisons employed where significant differentiation exists.

Fort Dix, New Jersey; Fort Eustis, Virginia; Fort Bragg, North Carolina and Fort Lee, Virginia. This phase was carried out by the Quartermaster Field Evaluation Agency, Fort Lee, Virginia, from 19 November 1959 through 8 January 1960 and the procedures were the same at all posts.\* The selection of test sites was based upon three qualifying factors essential to the investigation of several hypotheses included in the research proposal, and one limiting factor. The latter factor of available funds limited the collection of the data to the Eastern seaboard. The installations selected represented as wide a variety of Army posts as possible in a particular limited area.

(1) The first qualifying factor for selection was the primary mission performed at the installation. The posts were classified by mission as "combat" or "support." Fort Bragg, Fort Meade, and Fort Dix, were classified as "combat" posts; Fort Belvoir, Fort Eustis, Fort Holabird and Fort Lee were classified as "support" posts.

(2) The second qualifying factor was the proximity to cities of the installation. This factor was used in reference to the availability in terms of distance to "off post" restaurants. It was taken into consideration that most Army installations had a civilian fringe area adjacent to the post proper but the distinguishing factor was the distance to a metropolitan area. No clearly defined size limits were set, but a relative method of selection was employed. In many instances, a post could be classified as either accessible or inaccessible to a metropolitan area; therefore the classification used in this plan was formulated not as ideal or absolute but rather as a working compromise, and was relative. Fort Lee, Fort Eustis, Fort Bragg and Fort Dix were classified as inaccessible. Relatively, Fort Lee is the closest post, of those in this category, to a city of 40,000 population; however, it is 30 miles to the metropolitan area of Richmond, Virginia. Fort Eustis is 18 miles from Newport News, Virginia, 42,000 population. Fort Bragg is 10 miles from Fayetteville, North Carolina, 35,000 population and 55 miles from the metropolitan area of Raleigh, North Carolina. The last inaccessible post, Fort Dix, is 17 miles from

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\*The description of the qualifying factors underlying the selection of test sites immediately following is taken from Report QMRF FEA 59023 of the Quartermaster Field Evaluation Agency, U.S. Army Quartermaster Research and Engineering Command, Fort Lee, Virginia, which was the agency responsible for the field phases of the survey. In fact the description of these phases of the study given here generally relies heavily on this report.

the metropolitan area of Trenton, New Jersey, 128,000 population. The three accessible posts of Fort Holabird, Fort Belvoir and Fort Meade are also relatively classified. Fort Holabird is 2 miles from metropolitan Baltimore, population 950,000. Fort Belvoir is 14 miles from metropolitan Washington, D.C. and Fort Meade is 20 miles from both Washington and Baltimore.

(3) The third qualifying factor of type of activity was classified as "training" or "permanent." This classification referred to the particular unit tested and at some posts it was possible to sample both types. Units of the Third Cavalry Regiment were tested at Fort Meade and were classified as "permanent." Other units falling into the "permanent" classification were units from the 82nd Airborne Division at Fort Bragg, 79th Engineer Group at Fort Belvoir, and the 543rd Quartermaster Group at Fort Lee. Elements in the "training" classification which were sampled were units from the Airborne School at Fort Bragg; The Engineer School at Fort Belvoir; The Quartermaster School at Fort Lee; The 4th Basic Training Regiment at Fort Dix; The Army Intelligence School at Fort Holabird and the Transportation School at Fort Eustis. (See Appendix B).

At each post complete units were requested rather than a specific number of men. Local conditions, however, often made it necessary to depart from pre-arranged scheduling. Understrength units and alerts reduced the number of available personnel from the anticipated number and the teams were obliged to sample those available. While the sampling plan aimed for maximization of complete units, troop availability often became the primary factor. A record was made of the number sampled and the "For Duty" strength of the sampled unit when available. A total of 3,001 enlisted personnel in 23 units were sampled.

At all the testing sessions, the Test Officer gave a brief orientation. The interval between this orientation and the test was kept at a minimum. Under some circumstances the four enlisted Observer-Recorders of the test team were required to give the orientation.

The test team reported that most of the personnel at the posts studied thought the test team were food service inspectors, even after

the troop orientation, but also that a large majority of the test subjects voluntarily reported they were pleased to have an opportunity to express their views in the hope of improving various aspects of military life.

At the completion of Phase II the questionnaire were forwarded to the University of Chicago for editing, coding and analysis.

Preparation of Data for Analysis: After initial editing and coding by the University of Chicago research staff the questionnaires were forwarded to the Statistics Office of the Quartermaster Food and Container Institute for further processing and for preparation of data cards. Intensive analysis was begun by the contractors upon receipt of these cards in April, 1960. As a result of editing attrition the total number of respondents available for analysis was reduced, at this stage, to 2885. (See Appendix B2). The fact that less than one third of the actual strength of the 148th QM Co. was available for analysis led to the decision to exclude the 22 respondents from this group, thereby further reducing the sample to 2863 enlisted men and 22 units.

Measurement of Variables and Preliminary Analysis of the Data

The various independent variables in terms of which the individuals and units comprising the sample were differentiated have already been indicated and more specific information regarding their measurement will be noted as pertinent data is presented and examined. The focus of this study is upon variations in expressed food preferences as measured by the Quartermaster Corps' 9 point hedonic scales. While

interest in the problem area extends to the full range of foods served by the military, the preference data obtained in this study was of a more limited nature including only responses to various main dish items, both of the mess and field rations type.

Concerned especially with relating variation in main dish acceptance ratings to differences in military situations and group contexts, interest focused initially upon the measurement of variance among the military units included in the survey. Two methods for evaluating the significance of this variance were employed. Standard analysis of variance was carried out for the differences in mean mess ratings among the units sampled. The results of these tests are shown in Table 1.

TABLE 1  
ANALYSIS OF VARIANCE F RATIOS FOR UNIT DIFFERENCES  
ON MESS ACCEPTANCE MEANS

Food	Level of Acceptance	Total Sample Mean	F Ratio <sup>a</sup>	P
Pork Chops	High	7.0	2.33	< .001
Roast Pork	High	6.8	2.34	< .001
Pot Roast	High	6.8	5.20	< .001
Baked Ham	High	6.7	7.31	< .001
Veal	High	6.7	1.76	< .05
Turkey a la king	Medium	6.4	5.26	< .001
Lamb Roast	Medium	5.9	4.37	< .001
Beef Stew	Low	5.5	9.13	< .001
Fried Fish	Low	5.1	5.07	< .001

Note: The 148th QM Co. was included in this analysis.

<sup>a</sup>There were 21 degrees of freedom for the between unit mean squares, and the degrees of freedom for within unit mean squares ranged from 2,443 to 2,517.

These results indicated that there was a significant amount of variation in mess ratings among military units for all levels of over-all food acceptance, indeed, for all mess items included in the study. A second check on the importance of the unit differences employed the criteria suggested by the Quartermaster Food and Container Institute. (13) The differences among units satisfied the most conservative criterion recommended, a total range equalling or exceeding 0.80 scale points.

Three of the 9 mess foods were singled out for intensive study, one at each general level of acceptance. These were baked ham, turkey a la king and fried fish. The former two had the largest F ratios for their general acceptance level, while the fried fish was selected because of its interest in relation to earlier work in the area. (1)

Before proceeding to detailed examination of the findings brief mention can be made of the relationships observed between the mess preference ratings that constitute the principal dependent variables in this study and the field rations preferences also obtained for members of this sample. The average product moment correlation between six field rations and the nine mess food ratings, employing unit means, was found to be .63. These average correlations ranged from .53 to .69. Looked at from one perspective these findings have direct implications for assessing the validity of the mess preference analysis contained in this report. When comparing military units on the basis of mess preferences it is important to bear in mind that any differences obtained could well be a result of objective variations in the preparation of food from one mess hall to another. Ideally,

the study might have included measures of such objective variations, but practically speaking, this proved to be unfeasible. Field rations, however, constitute highly standardized products and unit variations in the ratings of such food items can hardly be attributed to the intrinsic qualities of the rations. Therefore, in the absence of the preferred control the close correspondence observed in this survey between mess ratings and field ration ratings provides reasonable assurance that the unit variations in mess preference reflect more than sheer differences in the food served in the mess.

CHAPTER II

RESEARCH FINDINGS

#### COMMITMENT TO THE ARMY AND MESS PREFERENCES

The concept of commitment is a rather general one directing attention to possible variations in the extent to which individuals identify their own personal lives with the activities and goals of the groupings and organizations with which they are associated. The concept has been found useful in connection with the description and explanation of differences in behavior and attitude among the members of an organization, and in the research proposal preceding this report it was suggested that an application of this approach might prove helpful in explaining observed differences in mess food acceptance among members of the armed forces. (8) The general hypothesis to be tested stated that commitment to the Army, both as an attribute of individual soldiers and as a group norm, is associated with higher levels of mess food acceptance. In full recognition of the fact that commitment to the Army is far from a simple or unitary phenomenon, it was proposed that this general hypothesis be tested in terms of a series of indicators each of which could reasonably be expected to measure a particular aspect of the underlying concept. Included among the specific indicators of commitment to be examined in this connection were: (1) Enlistment status (enlistee vs. draftee)

- (2) Rank
- (3) Future career plans
- (4) Favorableness of general attitudes toward the Army.

Briefly, it was expected that mess food acceptance would be higher among

enlistees, NCO's, Army career men and soldiers favorable in their general attitude toward the Army. Differences associated with group environments paralleling these individual attributes were also considered of interest. The data bearing upon these various hypotheses will be examined in this section of the report.

While other sections\* of the report are specifically devoted to a detailed description of the procedure employed in analyzing such findings, a few points are perhaps also worth repeating here. Fundamentally, of course, our interest centers in making two kinds of comparisons:

- (1) How mess food preferences vary with a given characteristic of individual soldiers.
- (2) How mess food preferences vary with the composition of military units in ways indicating the presence of a group effect.

The main purpose of the method employed is to isolate, where possible, the respective contributions of each of these two sources of variation in mess preferences. Alternatively, where the individual differences and the group effects are interdependent the method formally establishes this fact and allows further for the specification of various possibilities of this sort. In general terms, this is done by examining differences in mess preferences while simultaneously controlling for a particular measure of unit composition and its corresponding individual attribute. Operationally the procedure involves first separating soldiers on the basis of personal characteristics within units of varying composition in terms of the same characteristic, and second, performing separate regressions of mess preferences on the unit compositions within each of these individual categories. The method

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\*See section on procedure and Technical Appendix. (Appendix A)

examines the results of these regressions in terms of (a) the measures describing the slopes of the regression lines and (b) the differences between these lines. The measures describing the slope generally presented in the tables are the beta weights ( $B$ ) and the coefficients of determination ( $r^2$ )<sup>\*</sup> and these measures describe the strength or extent of the compositional (group) effects. Several comparisons are made in order to describe group effects as these relate to mess preferences. The measures of the regression slopes which stand for the strength of group effect are first examined to see if they may be considered different from zero. Where one or both of these measures are different from zero, and hence where some group effect would seem to be present, these measures are next compared to determine the kind of group effect involved.<sup>\*\*</sup> Particular interest centers in whether or not the group effects are present for one or both kinds of soldiers and in either of these events whether or not they are of similar magnitude.

The difference between lines is relevant for indicating the difference between individual soldiers, controlling or holding constant the composition of the group or unit. Where the lines are parallel

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\* The beta weights are the  $b$  regression coefficients expressed in standard form, i.e., in terms of the standard deviation of the independent variables. In simple regression these betas are identical with the product moment correlation.

\*\* See Technical appendix for specific procedure.

the difference between individual soldiers, holding constant the unit composition, may be considered generally uniform across variations in unit composition and therefore independent of the group effects already considered. Where these lines are not parallel (which is another way of saying that the group effects on the two kinds of individuals are different) the individual effect will vary with the unit composition. Under these circumstances the individual difference may vary in degree, direction, or both, depending upon the particular regression lines involved. In the case of parallel lines, comparison of the line intercepts ( $a$ 's) gives some indication of the importance and magnitude of what is meant here by the individual difference. For this reason, as well as for purposes of presenting information, the  $a$ 's are given in the standard table format along with the betas and  $r^2$ 's. However, where the lines are not parallel such comparison of intercepts cannot be used to gauge the individual difference, even approximately. In either case final judgments of the importance of this difference were based upon considerations noted in the technical appendix.

Now let us turn to the mess preference findings concerning the first commitment variable, Army enlistment status. The relevant relationships are described in Table 2. The group independent variable employed is the proportion of soldiers within each unit reporting they entered the service by enlistment rather than selective service, and within each unit enlistees and draftees are distinguished. Separate regressions were computed for each of the two categories of soldiers employing a measure of mess food preference as dependent

variable. Three measures of mess preference were considered, baked ham, turkey ala king, and fried fish, each at a different level of acceptance. The body of the table presents the regression intercepts, the beta weights and the coefficients of determination. The results of the compositional analysis are summarized in the bottom line of each food section of the table by reference to one of the types previously distinguished.

TABLE 2  
ENLISTMENT STATUS AND MESS ACCEPTANCE  
Group Independent Variable: % Enlistee

Individual Attribute	Baked Ham			Turkey ala king			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
Enlistee	6.72	.01	.00	5.68	.40	.16	4.69	.13	.02
Draftee	6.56	.19	.04	6.03	.21	.04	4.85	.03	.00
Type	0			Indeterminate			0		

According to the findings of this survey there is no consistent relationship, either on the group or individual levels, between enlistment status and expressed food preference for the three foods considered. Baked ham and fried fish are clearly classifiable as Type 0, which is used to designate instances where neither a group effect nor an individual difference is observed. For example, the absence of any group effects for these foods can be readily seen from the low values of the beta weights and coefficients of determination in the table, indicating the

slopes for the respective regressions can hardly be considered different from zero. Since the slopes for the enlistees and draftees may be considered the same - i.e., not significantly different from zero - we can obtain an idea of the differences between enlistees and draftees controlling for unit enlistment composition from the intercepts or "a's". Clearly, these are rather close together indicating the absence of any significant difference between individual enlistees and draftees within units.\*

Turkey ala king is indeterminate as to type in the zero order relationships since: (a) the slope for enlistees is significantly different from zero, while the corresponding slope for draftees fails to meet this test, and (b) these slopes are not significantly different from each other. However, in view of the fact that the group effect indicated by the beta of .40 among enlistees can be largely partialled out ( $\beta = .19$ ) when a multiple regression is done with length of service, a factor considered later in the report, turkey ala king may also be considered as a Type O.

The findings relevant to the relationship between rank and mess acceptance are presented in Table 3. The group independent variable is the per cent NCO in each unit and the soldiers within each group are distinguished on the basis of their rank.\*\* Here the slopes for the

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\* Appendix E contains the results of statistical tests of significance for this and all subsequent compositional effects tables.

\*\* No NCO's were included among the respondents for 5 of the 22 units in the study, and 1 unit in the sample was represented by only 1 NCO leaving the base figure for NCO's as 16 units.

TABLE 3

RANK AND MESS ACCEPTANCE

Group Independent Variable: % NCO

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
NCO	6.58	-.04	.00	6.06	-.09	.01	4.15	-.01	.00
Non-NCO	6.87	-.45	.21	6.36	-.47	.22	5.17	-.45	.20
Type	VIII			VII			VIII		

regressions among non-NCO's differ appreciably in a negative direction from zero for each of the three foods. It is, however, impossible to accept the hypothesis that the corresponding slopes for NCO's depart from zero. This raises the possibility of a group effect in which, contrary to any hypothesis initially entertained, the level of food acceptance among non-NCO's declines with an increase in the per cent of NCO's. When the slopes for NCO's and non-NCO's are compared statistically the differences fall short of the .05 level. However, in view of the observed differences between the beta weights, it seems reasonable to treat the slopes for NCO's and non-NCO's as different. Analysis further indicates that in the case of baked ham and fried fish the 2 lines intersect and cross over suggesting that rank represents a Type VIII case. In other words, the per cent of NCO's in a unit is associated with an adverse effect on the mess acceptance of non-NCO's,

men, but for NCO's this group variable is unrelated to the dependent variables. This is also reflected in a tendency for the relationship between rank as a personal attribute and mess acceptance to take different directions depending upon the unit context. Where there are few NCO's, non-NCO's are higher on mess acceptance than NCO's, while in units with larger percentages of NCO's the mess acceptance of non-NCO's drops to a lower level than the NCO's.\* Turkey ala king, on the other hand, is best regarded as a Type VII. Here, as in the case of the other 2 foods, the group effect is observed among non-NCO's, but not among NCO's. Only in this case, the result is a convergence of preferences with increasing proportions of NCO's in the unit. With relatively few NCO's in the unit non-NCO's are generally higher in their preference. This difference declines until at the higher range of NCO compositions the two kinds of men are essentially similar. Relating these findings to the hypothesis initially entertained regarding rank and mess food acceptance, it seems clear that the hypothesis is not confirmed.

Relationships between future career plans and mess acceptance are described in Table 4. The group or unit independent variable employed is the per cent of each unit that reported planning or

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\*It should be noted that the per cent of NCO's in all units was a minority of the unit but that this minority represented a more significant segment in some units.

TABLE 4

FUTURE CAREER PLANS AND MESS ACCEPTANCE

Group Independent Variable: % Planning an Army Career

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
Planning an Army Career	6.95	.05	.00	6.65	-.02	.00	5.59	-.10	.01
Planning a Civilian Career	6.17	.23	.06	6.09	.05	.00	4.20	.24	.06
Type	I			I			I		

considering an Army career, and within each unit individuals are distinguished on the basis of whether they are planning an Army career or a civilian career.\*

In the case of future career plans the analysis indicates a Type I situation for each of the three kinds of food. Soldiers who are oriented toward an Army career rate each of the foods higher than those soldiers that are planning to return to civilian occupations. Further, this relationship is not significantly influenced by the social environment of the unit in which a soldier finds himself as this is measured by the per cent of the group that expects to make the army a career.

\* See Appendix C. Respondents were classified on the basis of their answer to Question 17. Those selecting either of the first 2 responses were classified as Army career oriented.

Finally, despite the appearance of small trends in the case of Baked Ham and Fried Fish there is no significant relationships between prevalence of Army career orientation as a characteristic of unit social climates and mess acceptance. The first finding suggests the interpretation that commitment to an Army career is positively associated with expressed mess preferences as an individual attribute, and that such a personal commitment is largely impervious to influences stemming from variations in group sentiment in this area. Perhaps the latter implication can be related to the finding that mess preference does not differ appreciably for units with varying proportions of men planning Army careers, a finding which suggests that Army career plans may not constitute a strong focus for the crystallization of group norms at the level of entire Army units.

A final variable relevant to the general area of commitment is represented by general attitude toward the Army.\* In Table 5 the

TABLE 5  
GENERAL ATTITUDE TOWARD THE ARMY AND MESS ACCEPTANCE  
Group Independent Variable: % Favorable Attitude

Individual Attribute	Baked Ham			Turkey ala king			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
Favorable	7.04	.05	.00	6.44	.15	.02	5.15	.15	.02
Unfavorable	5.92	.52	.27	5.12	.80	.63	3.63	.57	.32
Type	VII			VII			VII		

\* See Appendix D(1) for the measure of Army Favorableness employed.

proportion of soldiers within each army unit favorable toward the Army is utilized as the independent variable, and soldiers with favorable and unfavorable attitudes are analyzed separately within each unit. Attention is directed to the distinct differences between the slopes of the regression lines for soldiers with favorable and unfavorable attitudes toward the Army for each of the three foods examined. The pervasiveness of favorableness to the Army in units affects rather strongly the food preferences of soldiers who are generally unfavorable to the Army, but shows no effect upon soldiers already favorable in their disposition. The differences between the lines, i.e., the differences between soldiers with favorable and unfavorable feeling toward the Army, are rather strong within units of low to moderate Army favorableness. With increasing unit favorableness, however, the difference is reduced until it reaches insignificance in groups of strongest favorableness. These findings taken together suggest that favorableness toward the Army is important both as a characteristic of group climates and as a previously acquired individual orientation. The form taken by the group relationship lends some support to the hypothesis that sentiments in this area can constitute a focus for the development of group norms. In these terms, perhaps the strong group effect upon soldiers unfavorable in attitude toward the Army reflects the results of social pressures functioning to induce conformity with group sentiments among soldiers lacking internalized directives congruent with their social environment.

In summary, the data relevant to the general relationship between commitment to the Army and mess food acceptance points to the

following tentative conclusions.

(1) Enlistment status appears unrelated, either as an individual or group characteristic, to the mess food criterion variables employed in the analysis.

(2) Among individuals rank shows no consistent relationship with two of the three food acceptance variables, varying in direction with the proportion of NCO's in the unit. As a group characteristic, the proportion of NCO's is negatively associated with mess preference among non-NCO's, and unrelated to mess preference among NCO's. It seems clear that the initial hypothesis regarding rank as an indicator of commitment to the Army is not supported by the findings. Further efforts at analyzing and interpreting the basis for the relationships uncovered in this area will be deferred to a later and more appropriate section of the report.

(3) In this survey Army career intentions are associated with higher expressed food preferences, partially confirming the commitment hypothesis. The findings further indicate that variations in the proportion of career oriented soldiers in a unit do not contribute independently to variations in food preferences.

(4) Favorableness of general attitude toward the Army appears to be related to higher mess food preferences both as a previously acquired orientation and as a characteristic of group social climates. Its principal effect in the latter context seems to consist of bringing group pressures to bear either in raising the level of preferences among soldiers unfavorable to the Army where the unit

social climate is integrated around the norm of favorableness to the Army, or in further lowering this level among such troops where the unit social climate is essentially unfavorable to the Army.

#### MILITARY TASK, ACCESSIBILITY TO CIVILIAN EATING FACILITIES AND MESS PREFERENCES

This section of the report will present the findings obtained for testing several hypotheses relating mess preferences to variations in military task and accessibility to civilian eating facilities. The originally proposed hypotheses may be stated as follows:

(1) Mess food preferences will vary with military task such that these preferences will be more favorable among military personnel and units engaged in "soldierly" activities, (e.g., those with combat tasks) and will be unfavorable among military personnel and units engaged in more "civilian" type activities (e.g., those with support tasks).

(2) Mess food preferences will vary with proximity to civilian eating facilities such that these preferences will be more favorable among personnel stationed at military installations inaccessible to civilian eating places and will be more unfavorable among personnel stationed at military installations more accessible to civilian eating places.

In order to test these propositions the units included in the study were classified on the basis of their military task as combat or support, and on the basis of their proximity to civilian eating places as accessible or inaccessible. In addition the sampling procedure allowed for a further classification of units distinguishing between permanent, training, and basic training.\* Differences in mess

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\* For the specific classification of units see section on data collection in Chapter I and Appendix B.

preferences among units variously classified in terms of the three characteristics noted were compared by the following method. The regressions of the three mess food preference ratings employed throughout the report were computed on the unit measures of future career plans. The residuals of these regressions were obtained, and the average residuals for the different categories of units were compared. Career plans was selected as the independent variable because as a group factor its association with mess preference was minimal. There were several attitudinal variables accounting for an appreciable part of the variance among units. It was considered advisable, however, to first examine the variables considered in this section under conditions allowing full opportunity to measure their contribution. Should the results of such an analysis support the hypotheses further elaboration of the findings would then be appropriate in order to isolate possible intervening variables.

The results of the analysis pertinent to the hypothesis of military task and mess preference are contained in Table 6 with permanence of assignment taken into account. A comparison of the mean residuals for combat and support units indicates that the predicted difference is observed primarily among trainees. The expected relationship does not hold among permanent personnel for fried fish, and is rather small in terms of the other differences observed in the table for baked ham and turkey ala king. Combat training units, in contrast, are considerably above support training units. Preferences in basic training units seem to be intermediate to

TABLE 6

MEAN MESS PREFERENCE RESIDUALS FOR UNITS CLASSIFIED  
ON THE BASIS OF MILITARY TASK AND  
PERMANENCE OF ASSIGNMENT

Permanence of Assignment	Baked Ham				Turkey ala King				Fried Fish					
	Support		Combat		Support		Combat		Support		Combat			
Permanent	-.248	6	N	-.183	4	N	-.373	6	-.292	4	N	-.433	6	
Training	.158	7		.365	2		.124	7	.653	2		.157	7	
Basic				.128	3				.411	3			.576	3

to those for combat training and support training, at least in the case of Turkey ala King and Fried Fish. Were the basic trainees combined with the combat trainees, the differences between the combat training and support training units, while reduced, would remain rather large except in the case of Baked Ham. An examination of the table further indicates that there is a definite trend in mean residuals ranging from permanent support units to combat training units with the former falling furthest below and the latter furthest above the predicted values.\* While attention has been focused upon the differences between combat and support units it is obvious from the table that the contrast between training and permanent units is a more consistent and powerful one. In each possible comparison between permanent and training units a rather strong difference may be observed in which the training units are more

\*Note a reversal in this trend between Combat-Permanent and Support-Permanent categories on Fried Fish.

favorable than the permanent units. A further point of consistency lies in the fact that the mean residuals for each of the training units are positive while each of the mean residuals for permanent units are negative. While no such relationship was initially hypothesized the findings supply considerable grounds for recognizing the importance of differences in terms of the training - permanent dimension.

The findings in Table 7 become relevant when attention is shifted to the accessibility hypothesis. It is difficult to discern any support for the hypothesis in these findings, or indeed, any simple pattern describing the effect of accessibility upon unit mess preferences. The differences between training and permanent units, however, are again consistent and appreciable. While the accessibility hypothesis is not borne out by the findings it is important in this connection to take note of the fact that the classification of installations on the basis of proximity to civilian eating facilities was a rather

TABLE 7  
MEAN UNIT PREFERENCE RESIDUALS BY PROXIMITY TO  
CIVILIAN EATING FACILITIES AND BY  
PERMANENCE OF ASSIGNMENT

Permanence of Assignment	Baked Ham		Turkey ala King		Fried Fish							
	Access- ible	Inacc- essible	Access- ible	Inacc- essible	Access- ible	Inacc- essible						
	N	N	N	N	N	N						
Permanent	-.116	7	-.468	3	-.409	7	-.180	3	-.552	7	-.326	3
Training	.315	4	.115	5	.253	4	.232	5	.207	4	.457	5
Basic			.128	3			.411	3			.576	3

crude one, perhaps falling short of the precision necessary for an adequate testing of the problem.\*

The findings of this section may be summarized as follows.

(1) The analysis of mean residuals indicates that combat training units are appreciably higher than support training units in mess preference, partly substantiating the original hypothesis regarding military task activity. There seems to be little basis, however, for accepting this proposition with reference to permanent units.

(2) The findings concerning proximity to civilian eating facilities do not support the hypothesis that this factor is associated with definite differences in mess food preferences.

(3) While no specific hypothesis was initially entertained in the area, all indications point to the presence of important differences in preference between training and permanent units. These differences generally out-weigh any of the others considered in this section and definitely appear to warrant further examination.

#### DIFFERENTIATING CHARACTERISTICS OF TRAINING

#### VS. PERMANENT UNITS

In the preceding section devoted to variations in mess preferences among units of diverse military duties and tasks a largely unexpected finding emerged indicating that the mess preferences of personnel in training units were on the average considerably more favorable than the

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\* See section on the classification of units sampled in Chapter I.

corresponding preferences of personnel in permanent units. In contrast to any differences relating to combat vs. support military duties or accessible vs. inaccessible military situations where definite explanations of expected relationships were worked out, (8) these differences in terms of permanence of assignment clearly call for further analysis. What are the main differentiating characteristics of training and permanent unit personnel that can serve to clarify and interpret these important yet unanticipated findings?

Table 8 contains the principal correlates of the unit characteristic under consideration. There appear to be strong positive associations with

TABLE 8  
PRINCIPAL CORRELATES OF TRAINING UNITS

Variable	Point Biserial Correlation with Training Units <sup>a</sup>
Length of Service Per cent entering after 1958	.87
Army Favorableness Per cent Favorable	.80
Esprit Per cent high esprit	.63
Attitudes Toward NCO's Per cent favorable to NCO's	.85
Rank Per cent NCO	-.46

<sup>a</sup>Computed on the basis of 22 units (12 training and 10 permanent) except in the case of Rank, where no NCO's were included in the sample for 5 training units and only one in a sixth unit leaving 16 units as the basis for this correlation.

average unit Army favorableness, average unit length of service, average unit esprit, and average unit favorableness toward NCO's, as well as a noteworthy negative correlation with the proportion of NCO's in units. These variables certainly suggest some possible interpretations of the observed differences in preferences between trainees and permanent personnel. Furthermore, each of the variables can be analyzed in terms of the compositional effects methods employed as a central tool in this study. The sections that follow closely examine these various factors on this basis, as they relate to mess preferences.\*

#### Esprit, Army Favorableness and Mess Preference

This section of the report examines the relationship between personal esprit, unit esprit and the mess food criterion variables. Army favorableness, a variable previously examined, will also be considered in order to throw further light upon the initial relationships involving esprit.

The standard findings relevant to esprit and mess acceptance are contained in Table 9.\*\* For Baked Ham and Fried Fish a Type VII situation appears to describe the findings. It should be stressed, however, that the relationships border closely on a Type VIII. There is a fairly strong tendency among soldiers with low personal esprit for acceptance to increase with greater proportions of unit members reporting high esprit. While soldiers with high personal esprit are unaffected by

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\* Army favorableness and NCO composition were first examined in the section on Commitment. See above.

\*\* See Appendix D(2) for measure of esprit utilized.

TABLE 9

ESPRIT AND MESS ACCEPTANCE

Group Independent Variable: % High Esprit

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
High	7.20	-.06	.00	6.13	.26	.07	5.33	.05	.00
Low	5.52	.52	.27	5.34	.47	.22	3.20	.59	.34
Type	VII			Indeterminate			VII		

unit esprit, they are higher in acceptance than those with low esprit across the greater range of observed values for unit esprit. This difference declines with increasing unit esprit until the lines intersect and this individual relationship reverses. The latter segments of the regression lines, however, are based upon too few cases for firm conclusions, and it is probably safer to think of the individual relationship as one in which the difference in acceptance noted between soldiers of high and low esprit holds only for groups with low unit esprit. In the case of Turkey ala King the analysis leads to indeterminate results, despite some indication of a trend similar to that for Ham and Fish.

Examination of the intercorrelations among the variables in the study indicates that esprit is correlated rather strongly with favorableness to the Army ( $r = .75$  among units). Furthermore, both

variables follow a similar pattern of effect in which the impact of variations in group composition is observed among soldiers with the generally less favorable personal attributes. Table 10 presents the beta weights for the multiple regression equations when both esprit and Army favorableness are considered together. Since the group effect was observed for soldiers low in esprit and unfavorable to the Army the multiple regressions were run for these categories.

TABLE 10  
ESPRIT, ARMY FAVORABLENESS, AND MESS ACCEPTANCE

Group Independent Variable: % High Esprit  
Group Independent Variable: % High Army Favorableness

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	A.Fav. B	Esprit B	R <sup>2</sup>	A.Fav. B	Esprit B	R <sup>2</sup>	A.Fav. B	Esprit B	R <sup>2</sup>
Low Esprit									
Multiple Regression	.39	.23	.33	.91	-.22	.58	.39	.30	.41
Zero Order Regression		.52			.47			.59	
Unfavorable to the Army									
Multiple Regression	.23	.38	.33	.82	-.03	.63	.42	.20	.34
Zero Order Regression	.52			.80			.57		

The betas indicate that both Army favorableness and esprit contribute independently to mess preference, excepting for turkey ala king, where esprit was originally classified as indeterminate in terms of the analysis. In the latter case, Army favorableness accounts for all of the relationship observed in the simple regression of esprit on turkey ala king. Although the variables otherwise contribute independently to preferences, it seems clear that they are appreciably reduced by taking each other into account, and this holds most strongly for esprit.

In summary, the findings relating to esprit, Army favorableness and mess preferences suggest the following tentative generalizations.

(1) High esprit, both on the group and personal levels, is generally associated with favorable mess food preference. The impact of unit esprit is, however, observed only among soldiers low in personal esprit. Since the effect of increasing esprit in the unit is greater favorableness of mess preference ratings among soldiers low in personal esprit, a gradual reduction in the difference in mess preference between individuals of high and low esprit is observed. In fact, at the higher levels of group esprit the individual difference is no longer observed.

(2) The possibility that the observed compositional effect involving esprit and mess preferences was the result of a rather strong association between Army favorableness and esprit was considered next. The results of a multiple regression with both esprit and Army favorableness as independent variables indicated that both variables contribute independently to the criterion variables. In the case of

esprit, however, the appreciable reductions in this factor's contribution to the criterion variables suggest that its greatest effectiveness occurs in combination with Army favorableness.

Attitudes Toward NCO's, NCO Composition, Length of Service and Mess Preference

In many areas of social life leader-follower relations have been found to appreciably affect group performance and the attitudes and behavior of rank and file members. The present survey allows for the examination of one factor relevant to this general area of concern - attitudes toward NCO's - as it relates to mess preference. Table 11 gives the data descriptive of the relationships between attitudes toward the soldiers' own particular NCO's and baked ham, turkey ala king and fried fish.\*

TABLE 11  
NCO ATTITUDES AND MESS ACCEPTANCE  
Group Independent Variable: % Favorable NCO Attitudes

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
Favorable	6.78	.17	.03	5.98	.52	.27	4.52	.43	.18
Unfavorable	5.71	.48	.23	5.02	.72	.52	3.23	.63	.39
Type	Indeterminate			III			III		

\*See Appendix D 3 for measure of NCO attitudes utilized.

With regard to turkey ala king and fried fish, we observe a rather strong tendency for preferences to be higher with increasingly favorable unit opinion climate toward NCO's. The effect seems to operate regardless of individual orientation, although its impact appears somewhat greater in the case of soldiers reporting unfavorable attitudes toward their NCO's. Finally, there is also a strong individual level relationship for each of these two foods with soldiers classified as favorable toward their own NCO's scoring higher. The findings with regard to baked ham indicate a trend in the direction of Type VI, but in view of the fact that the difference between the slopes is not particularly great these findings are conservatively classified as indeterminate.

Earlier, the proportion of NCO's in a unit was found to be inversely related to mess preference ratings among non-NCO's. In addition, it may now be noted that a rather strong negative association ( $r = -.74$ , unit level) was observed between proportion of NCO's in a unit and the extent of favorableness toward NCO's. These two findings taken together suggest the possibility that the relationships involving rank may be accounted for, at least partly, in terms of NCO attitudes. Table 12 presents the betas for the relevant multiple regressions among non-NCO's where the original relationships were observed. The findings seem to indicate that some part, but certainly not all, of the relationships can be attributed to variations in NCO attitudes.

In the light of the findings already presented it is of some interest to inquire further into the principal correlates of NCO attitudes. A rather substantial inverse association (unit  $r = -.80$ )

TABLE 12

NCO ATTITUDES, RANK AND MESS ACCEPTANCE

Group Independent Variable: % Favorable NCO Attitudes  
Group Independent Variable: % NCO's

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	NCO Att.	Rank	R <sup>2</sup>	NCO Att.	Rank	R <sup>2</sup>	NCO Att.	Rank	R <sup>2</sup>
Non-NCO's	.29	-.31	.32	.52	-.22	.49	.45	-.31	.51
Zero Order B for Rank Among Non-NCO's									-.45

between attitudes toward NCO's and length of service may be noted in this connection.\* Soldiers who had entered the army more recently were found to be considerably more favorable toward their NCO's than soldiers with longer service. Length of service both as a characteristic of unit composition and as an individual attribute was also found to be rather strongly related to mess preference, as may be seen from Table 13.

Regarding baked ham we observe a type VII situation where soldiers with less service are generally more accepting of Army food than older soldiers, but remain unaffected by the length of service composition of their units. In contrast, such variations have a rather strong impact

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\*With regard to length of service, respondents were classified into two categories: thos who had entered the service prior to 1959, and those who had entered during 1959. Since the field phase of the study was largely carried out during the last month of the year 1959 this classification is approximately equivalent to distinguishing between soldiers with less than one year service and soldiers with a year or more service.

TABLE 13

LENGTH OF SERVICE AND MESS ACCEPTANCE

Group Independent Variable: % Entering Service During 1959

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
Entered during '59	6.97	-.06	.00	5.85	.57	.33	5.15	.19	.04
Entered prior to '59	5.96	.65	.42	5.94	.57	.33	4.06	.38	.14
Type	VII			II			Indeterminate		

upon soldiers with longer service.\* Turkey ala king is a case of type II where there is a group compositional effect but no difference between new and old soldiers within units. Fried fish is classified as indeterminate despite a weak trend in the direction of type VII.

The next consideration is to check the possibility that NCO attitude operates as an intervening variable in explaining the relationship between length of service and mess preferences. Actually this possibility is relevant only in the case of turkey ala king, since NCO attitude is indeterminate on baked ham, while length of service is indeterminate on fried fish. Table 14 presents the results of an analysis of covariance in which the regressions of turkey ala king

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\* In the case of ham the calculated lines actually intersect and cross at the extreme but these segments of the line for pre-1959 are based upon categories with only a handful of respondents and the interpretation indicated is the more conservative one.

TABLE 14

UNIT FAVORABLENESS TOWARD NCO'S, LENGTH OF SERVICE  
AND TURKEY ALA KING MESS PREFERENCE

Unit Independent Variable: % Entering Service During 1959				
Unit NCO Favorableness	Individual Attribute	a	B	r <sup>2</sup>
High	Entered during 1959	7.02	-.24	.06
	Entered prior to 1959	6.30	.06	.00
Low	Entered during 1959	5.06	.66	.43
	Entered prior to 1959	5.92	.03	.00

rating on group length of service composition are carried out separately for soldiers of varying length of service and unit favorableness toward NCO's. These results indicate that among soldiers entering service before 1959, unit favorableness toward NCO's accounts rather completely for the relationships initially observed between length of service composition and turkey ala king ratings. Furthermore, the compositional effect among men entering service during 1959 is found to hold only in units relatively unfavorable toward their NCO's. Note that, following the zero order findings, the differences between the lines for individuals hardly suggest any appreciable consistent relationships on this level.

In conclusion, the findings of this section may be summarized as follows.

(1) Favorableness toward NCO's in the outfit, both as a characteristic of unit social climates and as a personal attribute, predicts turkey ala king and fried fish mess preference rather strongly.

(2) NCO attitudes is found to be closely associated with the NCO composition of the unit. The larger the proportion of NCO's in the unit the more unfavorable is the opinion of NCO's. The possibility that this relationship accounted for the previously encountered compositional effect of rank upon mess preferences was examined. This proved to be partly the case, suggesting that increased proportions of NCO's in the unit often led to lower mess preference because of the unfavorable NCO attitudes engendered by the rank composition of a unit. However, a part of the variance associated with rank could not be explained by NCO attitudes, suggesting further that whatever influence NCO's exerted as models for non-NCO's mess food preference would seem to be in a negative direction.

(3) NCO attitudes were also found to be inversely associated with length of service. Units with longer service were found to be less favorable toward their NCO's. Length of service as a unit and personal characteristic was also negatively associated with mess preference. Examining the case of variations in turkey ala king mess preference where both NCO attitudes and length of service were clearly operating, it was found that unit favorableness toward NCO's apparently mediated and accounted for the compositional effect of length service among soldiers with longer service. This compositional effect contributed

independently, however, among recent soldiers in units relatively unfavorable toward their NCO's.

#### ATTITUDES TOWARD ARMY FOOD, ARMY COOKS, AND ARMY MESS

#### FACILITIES IN RELATION TO FOOD PREFERENCES

The preceding sections of this report have examined mess food preferences in relation to a number of social psychological and group factors that lack direct reference to the culinary nature of the criterion variables. At this point findings relevant to three attitude areas immediately concerned with military food and the agencies and facilities that prepare it will be presented. The relationships to be tested in this regard are as follows.

- (1) Preferences for mess food will be higher among soldiers who view military food primarily in terms of an Army frame of reference, and lower among soldiers who view military food primarily in terms of a civilian frame of reference.
- (2) Preferences for mess food will be directly related to favorableness of attitudes toward Army cooks.
- (3) Preferences for mess food will be directly related to favorableness of attitudes toward various conditions in the unit mess.

It may be noted in advance of the presentation of findings that the results largely confirm the originally expected relationships. Several additional facts are equally important. First, the analysis suggests that two of these sets of attitudes are strongly influenced by the group climate of opinion. Second, it appears that these attitudes directly relevant to Army food preferences also may be shown in certain instances to interpret

and make more meaningful the relationships between some of the social factors previously found to be associated with mess preferences. In this section of the report the findings concerning food attitudes, attitudes toward cooks and mess attitudes will be presented first. Following this the interrelations between these attitudes and other social factors will be considered.

Table 15 presents the findings for attitudes toward Army food and mess preference. Regarding turkey ala king and fried fish, the data indicate a type III situation in which: (1) soldiers expressing what may be operationally considered to be a military view of Army foods are uniformly higher in mess preferences than soldiers expressing a more civilian view of Army foods,\* and (2) regarding units, it can also be seen that both among soldiers with military and civilian orientations toward Army food, mess preference ratings become more favorable with increasing acceptance of military food attitudes in the unit. Baked ham can be classified as a type VII situation where we observe a strong group

TABLE 15  
ATTITUDE TOWARD ARMY FOOD AND MESS ACCEPTANCE  
Group Independent Variable: % Favorable

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
Favorable	6.67	.17	.03	5.70	.38	.14	3.59	.53	.28
Unfavorable	4.80	.60	.36	4.56	.55	.31	1.91	.68	.46
Type	VII			III			III		

\*See Appendix D(4) for the index employed in measuring attitudes toward Army food.

composition effect upon soldiers with civilian food attitudes but no effect upon soldiers with military food attitudes. Since those with military food standards are generally more favorable in their mess preferences this compositional effect also means that the differences between soldiers varying in terms of these standards progressively narrows with increasing dominance of military food attitudes until the two kinds of soldiers are essentially similar in their mess preferences.

Attitudes toward army cooks, both as an attribute of individual soldiers and as a characteristic of unit social climates, is examined next.\* Table 16 presents the relevant findings. There is clearly a rather strong

TABLE 16  
ATTITUDES TOWARD COOKS AND MESS ACCEPTANCE  
Group Independent Variables: % Favorable Toward Cooks

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
Favorable	5.49	.61	.37	5.33	.50	.25	3.50	.61	.37
Unfavorable	5.23	.43	.19	4.12	.65	.43	1.53	.67	.45
Type	II			III			III		

compositional group effect upon both types of soldiers for each of the three kinds of foods. Specifically, the more favorable the group opinion of Army cooks is the higher the mess preferences. A similar within groups

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\*See Appendix D(5) for the index of attitudes toward cooks.

difference between those favorable and unfavorable to Army cooks is also observed with reference to turkey ala king and fried fish. Baked ham, in contrast, shows only a group effect. Attitudes toward cooks, it may be noted and underlined, shows every indication of being a central variable in accounting for mess food preferences among the soldiers and units included in the present survey.

Table 17 contains the findings relevant to mess attitudes and food preferences presented in standard form.\* While classifiable as

TABLE 17  
MESS ATTITUDES AND MESS ACCEPTANCE  
Group Independent Variable: % Favorable Attitudes

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>	a	B	r <sup>2</sup>
Favorable	6.54	.34	.11	6.26	.35	.13	5.31	.14	.02
Unfavorable	6.26	.29	.09	5.82	.34	.12	4.00	.52	.27
Type	0			0			VII		

type VII on fried fish, mess attitudes is apparently a type 0 on baked ham and turkey ala king. The measure of mess attitudes employed is closely correlated with attitudes toward cooks, however, and a multiple regression with the latter variable held constant shows rather clearly that mess attitudes is not an independent contributor to the prediction

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\*See appendix D(6) for index of mess attitudes employed.

of preference ratings for any of the three foods considered. (See Table 18).

TABLE 18  
MESS ATTITUDES, COOKS ATTITUDES AND MESS PREFERENCE

Group Independent Variable: % Favorable Mess Attitudes  
Group Independent Variable: % Favorable Cooks Attitudes

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	Attitudes toward		R <sup>2</sup>	Attitudes toward		R <sup>2</sup>	Attitudes toward		R <sup>2</sup>
	Mess B	Cooks B		Mess B	Cooks B		Mess B	Cooks B	
Favorable Mess Atts	.00	.50	.25	-.18	.79	.46	-.15	.41	.11
Unfavorable Mess Atts	-.08	.55	.25	-.07	.61	.32	.03	.72	.55

Army favorableness is a correlate of mess preference considered earlier in this report. Furthermore, this factor is rather strongly associated with Army food attitudes. A hypothesis worth testing is that Army favorableness is related to mess preference, at least in part, by virtue of its connection with food attitudes. Table 19 presents the betas for the multiple regressions with both food attitudes and Army favorableness considered together. The results contained in this table indicate that food attitudes account for a part of the compositional effect of favorableness to the Army upon the three mess preferences, but that the latter factor also predicts preferences independently of food attitudes, especially in the case of turkey ala king.

TABLE 19

ARMY FAVORABILITY, FOOD ATTITUDES AND MESS PREFERENCE

Group Independent Variable: % Favorable to Army

Group Independent Variable: % Military Food Attitudes

Individual Attribute	Baked Ham			Turkey ala King			Fried Fish		
	Fav. to Army B	Food Atts B	R <sup>2</sup>	Fav. to Army B	Food Atts B	R <sup>2</sup>	Fav. to Army B	Food Atts B	R <sup>2</sup>
Unfavorable to Army Multiple Regression	.30	.46	.43	.66	.28	.70	.32	.53	.54
Zero Order	.52			.80			.57		

Earlier in this report favorability toward NCO's was found to be a rather strong correlate of mess food preferences. The present section has examined the contribution of two other important variables of more direct relevance to mess preferences: attitudes toward Army food and army cooks. Furthermore, the three variables in question are interrelated, with the correlations between NCO attitudes and attitudes toward Army food and cooks especially noteworthy.\* Particular interest attaches, therefore, to a test of the possibility that NCO attitudes operate upon mess preferences through these, presumably, more proximate variables.

Table 20 presents the beta weights and coefficients of determination for the various mess preference multiple regressions with NCO attitudes,

\* The unit level correlations are: NCO attitudes and attitudes toward Army cooks,  $r = .63$ ; NCO attitudes and attitudes toward Army food,  $r = .50$ ; attitudes toward Army cooks and attitudes toward Army food,  $r = .62$ .

TABLE 20  
ATTITUDE TOWARD COOKS, FOOD ATTITUDES, NCO  
ATTITUDES AND MESS PREFERENCES

Independent Variable 1: % Favorable to Cooks  
 Independent Variable 2: % Military Food Attitudes  
 Independent Variable 3: % Favorable to NCO's

Individual Attribute	Baked Ham			Turkey alla King			Fried Fish					
	Attitudes toward Cooks B	Food B	NCO's B	R <sup>2</sup>	Attitudes toward Cooks B	Food B	NCO's B	R <sup>2</sup>	Attitudes toward Cooks B	Food B	NCO's B	R <sup>2</sup>
Favorable to Cooks	.51	.52	-.36	.57	.34	.20	.06	.28	.16	.57	.16	.60
Unfavorable to Cooks	.10	.02	.42	.29	.31	-.10	.63	.66	.31	.15	.42	.59
Military Food Atts.	.63	-.08	-.29	.22	.74	-.12	.10	.54	.27	.21	.31	.45
Civilian Food Atts.	.22	.28	.38	.56	.08	.16	.68	.70	.35	.30	.33	.69
Favorable to NCO's	.46	.48	-.36	.46	.59	-.04	.17	.47	.47	.38	-.06	.54
Unfavorable to NCO's	.29	.00	.30	.28	.22	-.05	.61	.55	.09	.35	.40	.51

food attitudes and attitudes toward cooks as independent variables. Separate regressions are given controlling for each of the individual attributes. Examining this table it appears that all three of the independent variables show compositional effects on mess preference under particular conditions. The importance of this contribution varies considerably, however, and in some instances is reduced to insignificance. Actually a relatively simple pattern is obtained when the contributions of each variable are compared for the favorable individuals (favorable toward NCO's, favorable toward cooks, favorable toward Army food) and the unfavorables. Such comparisons are facilitated by Table 21. The generalizations suggested by this body of data are: (1) Holding constant attitudes toward cooks and attitudes toward Army foods, NCO attitudes shows an appreciable compositional effect upon soldiers unfavorable toward their NCO's, cooks and Army food. Clearly, the compositional effects previously attributed to NCO attitudes among soldiers favorable toward their NCO's, cooks and Army food are adequately accounted for by the other independent variables. (2) Holding constant attitudes toward NCO's and attitudes toward Army food, attitudes toward cooks shows an appreciable compositional effect upon soldiers favorable toward their NCO's, cooks and Army food. The compositional effects previously attributed to attitude toward cooks among soldiers unfavorable toward NCO's, cooks and Army food appear to be accounted for by NCO attitudes. (3) Attitude toward Army food appears to make a weaker independent contribution to mess preference compositional effect than either of the two factors previously considered. Note particularly that in the case of Baked Ham and Turkey ala King food attitudes are

TABLE 21  
ATTITUDE TOWARD COOKS, FOOD ATTITUDES, NCO ATTITUDES AND MESS PREFERENCE

Independent Variable 1: % Favorable Toward Cooks  
 Independent Variable 2: % Favorable Toward NCO's  
 Independent Variable 3: % Favorable Food Attitudes

Individual Attribute	Attitudes Toward						Army Food		
	NCO's			Cooks			Ham	Turkey	Fish
	Ham	Turkey	Fish	Ham	Turkey	Fish	Ham	Turkey	Fish
<b>Favorable toward:</b>									
NCO's	-.36	.17	-.06	.46	.59	.47	.48	-.04	.38
Cooks	-.36	.06	.16	.51	.34	.16	.52	.20	.57
Food	-.29	.10	.31	.63	.71	.27	.08	-.12	.21
<b>Unfavorable toward:</b>									
NCO's	.30	.61	.40	.29	.22	.09	.00	-.05	.35
Cooks	.42	.63	.42	.10	.31	.31	.02	-.10	.15
Food	.38	.68	.33	.22	.08	.35	.28	.16	.30

explained by the other independent variables when individual differences in food attitudes are controlled. Army food attitude does, however, involve moderate independent, compositional effects in the case of fried fish ratings.

The findings of this section point to several generalizations which may be briefly summarized as follows.

(1) For purposes of this study attitudes toward Army food are measured by an index intended to distinguish between civilian and military views of Army food. One of the hypotheses guiding the present study suggested that military food attitudes would be positively associated with mess preferences, while civilian food attitudes would be negatively associated with mess preferences. The findings presented earlier support this hypothesis by showing both a group and an individual level association in the predicted direction. As might be expected, military food attitudes were found to be positively related to general favorableness toward the Army. A plausible hypothesis to the effect that food attitudes operated as a principal intervening variable linking Army favorableness to mess preference was also examined. The results of this test indicated that this intervening relationship accounted for a part, but far from all, of the original compositional effect of Army favorableness upon mess preferences.

(2) Attitudes toward conditions in the unit mess were examined as a possible correlate of mess preferences. The relevant findings indicated, first, that this variable was a rather weak and inconsistent predictor of mess preferences. Furthermore, these relationships could be fully accounted for by holding constant attitudes toward Army cooks.

(3) As already implied, the relative favorableness of attitudes toward Army cooks was found to be a rather strong correlate of mess preferences both as a characteristic of group composition and as a previously acquired orientation.

(4) Attitudes toward Army cooks, attitudes toward Army food and attitudes toward NCO's were found to be rather strongly inter-correlated. Multiple regressions employing these three factors as independent variables led to several interesting findings. The compositional effects of Army food attitudes upon ham and turkey ala king were accounted for by attitudes toward NCO's and Army cooks. Its compositional effect upon fried fish, on the other hand, held up under controls. The findings concerning attitudes toward NCO's and Army cooks suggested a pattern of relationship whereby each variable exerted an independent compositional effect upon a different general category of soldier. Attitude toward NCO's seemingly exerted independent compositional effects upon soldiers with unfavorable attitudes toward their NCO's, Army cooks and Army foods. Attitudes toward Army cooks, in contrast, exerted its independent compositional effects upon soldiers favorable in their attitudes toward NCO's, Army cooks and Army food. Between these two variables a considerable amount of the inter-unit variation in mess preferences could be explained.

SITUATIONAL FACTORS RELATING TO FOOD PREFERENCES  
IN THE MILITARY ESTABLISHMENT

In this section we shall examine several factors considered pertinent to the food preferences of military personnel under somewhat more restricted and special conditions than applied to the variables analyzed elsewhere in this report. In so doing the focus of attention will be upon the role of two anticipatory expectations of Army food felt to be associated with particular military situations. Specifically, the following hypotheses concerning anticipatory expectations and given military contexts are to be examined:

Expressed food evaluations in a military situation will tend to vary inversely with a soldier's previous anticipations of the quality of food available in the situation.

(1) Men entering the service will typically have unfavorable anticipations of the food served in the Army. Accordingly, the evaluation of the food actually served in basic training should be favorable, relative to the initial anticipations.

(2) Men undergoing basic training will typically expect the food in a regular company mess to be an improvement over the food they are presently obtaining. Accordingly, it may be expected that the evaluation of food served in the regular mess will be unfavorable, relative to the anticipations entertained in basic training.

In order to examine the hypotheses relating anticipations to mess preferences in basic training the survey responses to two questions will be analyzed. The first of these questions asked: "Before you entered the service what did you think Army food would be like?"

(1) I expected it to be of good quality and well prepared.

(2) I expected it to be of good quality but poorly prepared.

(3) I expected it to be of poor quality but well prepared.

(4) I expected it to be of poor quality and poorly prepared.

(5) I really hadn't given the food much thought.

The responses to this question may be taken as an operational measure of the anticipations of Army food with which the soldiers in question entered the service. Table 22 presents the distribution of responses to this question for the total sample and for each of the three basic training units considered separately. Both in the total sample and in the basic training units a majority of those offering a definite opinion state they expected Army food to be poor either in quality or in preparation.

TABLE 22  
PRE-SERVICE ANTICIPATIONS OF ARMY FOOD

Personnel	N= 100%	NA	Good quality, well prepared	Good quality, poor prepared	Poor quality, well prepared	Poor quality, poor prepared	No thought
1st week basic	124	2	8.9%	50.0%	3.2%	23.4%	14.5%
5th week basic	197	1	34.5%	26.4%	4.1%	16.2%	18.8%
8th week basic	170	0	22.3%	45.8%	1.2%	11.2%	19.5%
All units	2859	26	30.1%	30.4%	1.7%	8.8%	29.0%

This supports one proposition presently under examination. It is interesting to inquire further, however, and compare the results for the basic trainees with those for the total sample. One point to note is that the percentage of persons reporting they hadn't given the matter much thought is con-

siderably less among basic trainees than it is for the total sample. This suggest what might be expected on general methodological grounds, i.e., that the responses of the basic trainees are probably a more accurate measure of the variable under consideration in as much as the experiences they are expected to recall are more recent than is the case for soldiers with longer service. It seems, however, that the chief difference between the total sample and those in basic occurs when men in their first week of training are considered. It is among this group that need only recall what they were thinking a week earlier that the most negative anticipations of Army food are reported. Those in the 5th and 8th weeks of training, interestingly enough, differ considerably less from the total sample indicating perhaps how with the passage of time the recollection of earlier attitudes becomes progressively colored by intervening military experiences.

Attention is directed next to the second aspect of the hypothesis under examination. For this purpose responses to the following question were employed. "Compared to what you expected how did you actually find the food in basic training?"

- (1) It was much better than I expected it to be.
- (2) It was somewhat better than I had expected.
- (3) It was about the same as I had expected.
- (4) It was a little worse than I had expected.
- (5) It was much worse than I had expected.

Table 23 contains the percentage distributions of responses to this question for the total sample and for the basic trainees considered

separately. Examining the men in their 1st week of basic training we observe a rather strong tendency for these men to report they found the food to be better than anticipated. While 73% of these soldiers reported

TABLE 23  
OPINION OF FOOD IN BASIC TRAINING RELATIVE TO EXPECTATION

Personnel	N= 100%	NA	Much better	Some better	Same	Little worse	Much worse
1st week basic	125	1	41.6%	31.2%	18.4%	8.0%	0.8%
5th week basic	189	9	20.1%	23.3%	30.2%	11.6%	14.8%
8th week basic	167	3	15.0%	20.9%	31.2%	23.4%	9.5%
All units	2782	93	19.6%	20.8%	25.4%	18.6%	15.6%

the food in basic was better than expected, only 9% felt the food was worse than expected. No difference between anticipation and realization was reported by 18% of the men in the 1st week of basic training. The findings for the total sample, and the other two units of basic training as well, contrast rather strongly with those for men in the first week of basic training. Here there is little evidence of the pronounced relationship observed among the new recruits. These findings, it should be noted, parallel those obtained regarding pre-service anticipations of food in basic training, and perhaps can also be accounted for in terms of selective recall.

Questions similar to those employed in the previous analysis were asked with respect to anticipations and evaluations of food in regular company mess. (See Appendix C, questions 24 and 25.) The findings on

anticipations and actual evaluations are presented in Tables 24 and 25 respectively. When the anticipations of food in regular company mess

TABLE 24  
ANTICIPATION OF FOOD SERVED IN REGULAR MESS

Personnel	N= 100%	NA	Much better than Basic	Little better than Basic	About the same	Little worse than Basic	Much worse than Basic
1st week basic	98	28	19.4%	24.5%	48.9%	6.1%	1.1%
5th week basic	156	42	28.2%	31.4%	31.4%	7.7%	1.3%
8th week basic	122	48	41.8%	39.3%	18.0%	0.0%	0.8%
All units	2732	153	38.5%	31.7%	26.8%	2.0%	1.1%

TABLE 25  
OPINION OF REGULAR COMPANY MESS RELATIVE TO EXPECTATION

Opinion	Per cent
Much better	11.6%
Little better	15.3%
Same	33.9%
Little worse	22.0%
Much worse	17.2%
N = 100%	(2391)

are examined for the total sample it seems quite clear that the respondents typically report looking forward to an improvement over the food served in

basic training. Note that the responses in the early weeks of basic training tend to be less optimistic about regular mess, no doubt reflecting their satisfaction with basic food based upon previous anticipations. Toward the end of basic training this effect has apparently dissipated and the food in regular mess is overwhelmingly expected to be better than that received in basic.

Turning to the opinion of regular company mess when compared with anticipation, it appears that the findings follow the hypothesis. While 27% of the sample report experiencing regular company food as better than basic training, 39% report that it is worse, and 34% report no change.

In conclusion, the findings of this section on the relationship between situationally linked anticipations of Army food and food acceptance may be summarized as follows.

(1) An examination of reported pre-service anticipations of Army food confirms the hypothesis that men entering the Army expect the food to be rather poor. A second hypothesis to the effect that this low level of pre-service anticipation leads to a relatively favorable evaluation of the food in basic training is also supported by the findings. An important specification of the generalization is that this favorable evaluation is especially marked among soldiers in the earlier weeks of basic training.

(2) Anticipations of the food served in a regular company mess were, on the whole, found to be optimistic, looking forward to an improvement over the food available in basic training. Evaluations of the food served in regular mess were, again as hypothesized, found to be unfavorable relative to the earlier anticipation. The findings did not, however, support this hypothesis as strongly as those previously cited.

## **CHAPTER III**

### **CONCLUSION**

This report has presented research findings bearing upon a wide range of social-psychological and group factors relevant to the area of variations in main-dish food preferences among members of the armed forces. These findings have been summarized in more detailed fashion at appropriate points in the report. In conclusion, however, it may be helpful to briefly suggest what appear to be some of the more important results along with their implications.

Initial attention focused upon the possible relevance that commitment to the Army might have for mess preferences. The guiding hypothesis in this connection was that soldiers who were more strongly committed to the service would also be more favorable in their mess preference ratings. Furthermore, it was expected that in units with greater concentrations of soldiers committed to the Army a group norm would be operating, reinforcing and adding to the individual relationship what was referred to in the study as a group effect. Similar propositions involving the concept of commitment have been widely applied to the interpretation of behavior and attitudes in organizations. (8) There seems to be a rather fundamental social-psychological basis for the hypotheses in the current notions of psychological consistency or balance as elaborated, for example, by Festinger. (7)

In order to test these general hypotheses four indicators of commitment to the Army were employed: enlistment status, rank, career intentions, and general favorableness of attitude toward the Army. Interestingly enough, each of these presented a different pattern of relationships with regard to mess preferences. The relationships

involving the two indicators based upon formal status, enlistment status and rank, did not support the expectations at all. The mess preferences of enlistees and draftees did not differ significantly, nor were variations in ratings associated with the proportion of enlistees in a unit. Perhaps this reflects present conditions of service where enlistees include a large number of young men whose enlistment represents an expedient alternative to induction through selective service. The findings with regard to rank depart even more radically from the expected relationships. The preferences of NCO's were not at all high, and remained fairly constant with varying proportions of NCO's in a unit. But the most noteworthy pattern observed here was the tendency for preferences among non-NCO's to become progressively more unfavorable with greater proportions of NCO's in a unit. What it was about units with heavier concentrations of NCO's that led to lower mess satisfaction among non-NCO's remained, at this point, a question for further consideration.

A partial confirmation of the hypotheses was observed in the case of commitment as measured by future career plans. Soldiers who thought they might make the Army a career were consistently more favorable in their preferences than soldiers who preferred a return to civilian life. On the other hand, controlling for this individual attribute, there wasn't any significant tendency for units with greater proportions of soldiers planning an Army career to be more favorable in their ratings. In other words, while individual soldiers planning a military career were more favorable in their preferences, there was

hardly sufficient evidence that career intentions operated as a group norm influencing preferences in that direction.

The fourth indicator, favorableness of attitude toward the Army, resulted in still another pattern of relationships with mess food preferences. Soldiers unfavorable to the Army were highly sensitive to the general climate of Army favorableness in their unit, their mess food ratings increasing where this unit climate of opinion was most favorable and decreasing as the group became more unfavorable. Men favorable to the Army, on the other hand, were relatively uninfluenced by such differences in group favorableness. This led to a situation where in units generally unfavorable to the Army soldiers personally unfavorable to the Army rated mess foods much lower than men who were personally favorable to the Army. Yet in units of higher favorableness the personally unfavorable men were as high in their ratings as the more favorable soldiers.

Thus, of the four indicators introduced to measure commitment to the Army, it appears that the last, general Army favorableness, has the strongest group and individual effects upon mess preferences. It is, of course, in comparison with the others, the most direct measure of commitment employed. The findings relating to this area as a whole seem to suggest the necessity for careful investigation before employing indirect criteria, e.g., enlistment status, as indicators of personal commitment.

Two key hypotheses were tested in the next section of the report. One attempted to examine the effect of relative accessibility to civilian eating sources upon soldiers' mess food preferences. In

this connection it was hypothesized that soldiers stationed at military installations accessible to civilian eating places would be less satisfied with mess foods than soldiers stationed at military installations that were inaccessible. The former, it was reasoned, would be more likely to have access to civilian foods and this would make possible the ready comparison of Army mess foods with civilian food. However, this line of reasoning failed to receive support from a comparison of the preferences of men in units variously classified on the basis of relative proximity to civilian facilities.

Another hypothesis tested related variations in mess preferences to type of military task. For this purpose military activities were differentiated in terms of the extent to which they involved "soldierly" (e.g., infantry, paratroopers, etc.) as contrasted with "civilian" type duties. Exploratory work had suggested that identification with military as contrasted with civilian role was more common among "soldierly" personnel and units than among troops whose duties were of a more "civilian" character. What made this relevant was the further suggestion that an important part of identification with such a military role appeared to be a more ready acceptance of Army food. For purposes of testing this analysis the mess ratings of soldiers in Army units classified in terms of primary mission as combat were compared with men in units classified as support. The preferences of troops in combat units, it was hypothesized, would generally be more favorable than those assigned to support units. The findings, however, lent only limited support to this expectation. While the mess preferences of combat

training personnel were found to be more favorable than the corresponding preferences of support trainees, no such difference was observed among permanent personnel. Furthermore, even the observed difference between combat trainees and support trainees was overshadowed by a far stronger and more consistent one: the difference between permanent and training personnel. There was very clear evidence in the findings that training units were in general a good deal more favorable than permanent units in their mess ratings.

This finding was certainly an unanticipated one when first encountered since no specific hypothesis concerning this comparison had been entertained. The next problem was to specify the basis for this difference between training and permanent. Initially, this was far from obvious. Investigation soon indicated that several factors of considerable interest were both closely associated with permanence of assignment and strongly related to mess preference. These included, length of service, esprit, Army favorableness, NCO unit composition and attitudes toward NCO's. As might be expected, trainees had entered the Army more recently than permanent troops. Thus it became increasingly clear that the basic contrast in mess preferences was between "newer" and "older" soldiers; satisfaction with Army foods being strongest in the case of those serving less than a year and dropping off sharply among those with longer service.

This fundamental difference in mess food satisfaction among those with varying length of service was paralleled by differences that reflect satisfaction with Army life, both in general and in its various aspects:

Army favorableness, esprit and attitudes toward unit NCO's. The relationships involving mess preferences and Army favorableness have already been considered. Esprit related to preferences in the same general manner as Army favorableness. Men with low esprit were very sensitive to the general level of esprit in their unit, their preferences increasing in favorableness with greater over-all esprit and decreasing in favorableness with low unit esprit. On the other hand, soldiers with high personal esprit were relatively unaffected by such variations. This meant that in units of low esprit soldiers with low personal esprit rated mess foods much more unfavorably than soldiers of high personal esprit. Yet, in units of higher esprit there was essentially no difference in preferences between these two kinds of soldiers. Favorableness of attitudes toward unit NCO's was also strongly related to mess preferences. In this case, however, there was a group effect upon both soldiers favorable and unfavorable towards their NCO's in which ratings were higher where the unit sentiment was more favorable to NCO's and lower where it was unfavorable to NCO's.

These findings taken together indicate important differences in general response to military status and duties associated with length or stage of service. Furthermore, these differences seem to have direct and important consequences for expressed Army food preferences. While further investigation and analysis is needed before definite conclusions can be drawn, the evidence presently at hand seems to suggest the following picture. The early period of military service is one in which the men are undergoing intensive military training generally experienced as a fairly constructive and necessary utilization of their

services by men without Army career plans as well as those who intend to remain in the armed forces. Two general kinds of response seem to be typical of this period of service: (1) positive identification with a military role favorable to the Army, often including aspirations to an Army career, and (2) failure to identify positively with this military role and rejection of any plans for an Army career, accompanied by a more neutral compliance with such a role. The important point to note in this connection is the apparent fact that either of these two responses leads to remarkably similar consequences for Army food preferences.

Both responses are associated with favorable ratings of Army food.

In contrast, with the completion of training there appears to be a marked difference in sentiment between those soldiers and units that identify positively with the Army and those that fail to do so. While men with positive commitment to an Army career remain generally satisfied with Army life, including its food, after entering permanent outfits those who look forward to a civilian career become increasingly discontented with the service. Active training in military procedures gives way to the routine performance of duties in a context that allows much greater opportunity for the assertion of status differences based upon military rank. The line between those who will make the Army a career and those who desire to return to civilian life as soon as possible is drawn more sharply, and furthermore seems to be reinforced in the process. There is now a sharp division between a minority who identify with their military role and a majority who are antagonistic toward the Army in general and their own NCO's in particular. Only now

with increased mutual interaction and support from each other among the majority of discontented enlisted men this body of sentiments becomes the focus for a collectively based counter identification principally revolving around generalized dissatisfaction with Army life. The adverse consequences of these processes for group and individual morale have already been noted. Expressed dissatisfaction with Army food, it appears, is but one manifestation of this pervasive condition.

An important specification of this general pattern is also worth emphasizing. The findings suggest that among those with fundamental commitment to the Army and a service career the NCO's are not at all the most favorable to Army food. It appears that the most favorable men are the non-NCO's who aspire to an Army career. While this situation requires further investigation, it would seem to be consistent with the generalization that persons who aspire to full-fledged status in a group or organization, but have yet to achieve this position, may over-conform to the norms of those from whom they seek to win acceptance. The situation is also important since it suggests that the level of food preferences that may be expected of full status career soldiers represents a moderate rather than a very high and enthusiastic acceptance of Army foods.

**APPENDIXES**

APPENDIX A

TECHNICAL APPENDIX

Methods for Studying the Effects of  
Social Environments

While social scientists have long been concerned with the central problem of studying the effects of social environments it is more recent that general methods and research procedures have been developed enabling these effects to be systematically isolated and measured. Indeed, efforts in this direction are still going forward. Among the possible approaches to the study of the effects of social environments presently in the process of development, one approach stemming from the work of Paul Lazarsfeld in the area of multivariate analysis has been selected as most appropriate to the research conditions of the present study.

The basic characteristic of multivariate analysis is the examination of relationships involving a dependent or criterion variable, and two or more independent variables. Where the independent variables in a relationship under examination include both a variable measuring some facet of particular social environments or group contexts and a variable measuring a specific personal characteristic of the members of the groups in question the multivariate analysis is of a particular type referred to as contextual analysis. (11, 12)

Contextual analysis, then, is the examination of relationships in which both group and individual independent variables are involved. This situation allows for two general directions of comparison of considerable interest. On the one hand, it is possible to compare soldiers in terms

of personal characteristics while holding constant group contexts. Secondly, it is possible to compare differences among groups or units while controlling for the personal characteristics of the members of the units. In both of these types of comparisons the data may take one of three principal forms. The substantive interpretation involved in the two comparisons does vary however and thus it is worthwhile describing these three forms separately for the personal and group comparisons.

In the personal comparison we may observe no significant variation in the dependent variable between individuals with different personal characteristics indicating that the specific relationship between the personal characteristic and the dependent variable does not hold when a specific group variable is controlled. A second general or major possibility in the personal comparison can be distinguished when there is a uniform difference between individuals varying on personal characteristics, but similar in their group context. This indicates the presence of a consistent difference between individuals that is not due to the particular group variable involved in the analysis. A third major possibility exists where differences are observed between individuals within the same groups but the incidence, degree, or direction of the difference (or some combination of these) varies with the group context.

Turning now to the group comparisons we may note the major possibilities when a specific personal characteristic of the group members is held constant. First, there may be no differences between those members of different groups who are alike in terms of a specific

personal characteristic. Second, there may be differences between members of diverse groups that are uniform or similar for individuals different in terms of a specific personal characteristic. Third, there may be differences between groups that are of varying incidence, direction or magnitude depending upon the specific personal characteristics of the group members.

The various possible combinations of the two types of comparisons, personal (within groups) and group (between groups) are presented in tabular form in Chart I. The first point that can be noted about this table is the presence of a number of cells indicating incompatible combinations. Also notice that the table can be divided into four quadrants and when this is done the upper right-hand and the lower left-hand quadrants contain only incompatible combinations. The upper left-hand quadrant contains only compatible combinations, while the lower right-hand quadrant contains predominantly compatible ones but also several incompatible combinations as well. This is not the most important difference between them however. More important is the implication of the two quadrants containing only incompatible combinations for these indicate that the two quadrants containing compatible combinations are themselves mutually exclusive or incompatible.

Examining each relevant cell in turn we focus first upon the cell labeled 0 where we have a situation with neither a group (between groups) relationship nor a personal (within groups) relationship. Passing directly on to the I cell we find a type of situation where

CHART I  
Classification of Results of Contextual Analysis

Personal (within groups)	Group (between groups)				
	Conditional Group Relation- ship, controlling Individuals				
	1. No group relationship Control for individual differences	2. Uniform group relationship Control for indiv. dif.	3. A Grp. rel. one direction Varies in degree	3. B One di- rection grp. rel. for only some individuals	3. C Grp. rel. varies in direction for dif. indivs.
1. No individual relationship, Controlling grp. differences.	0	II	--	--	--
2. Uniform indiv. relationship, Controlling grp. differences.	I	III	--	--	--
3. Conditional Indiv. Relats. Grp. Diffs. Cont. Grp. Diffs.	A. Indiv. rels. in one direction. Varies in degree.	--	--	IV	VI
	B. Indiv. rels. in one direction, in some but not all groups.	--	--	V	VII
	C. Diff. direc- tion of indiv. relats. depend on group contexts.	--	--	--	VIII IX

there would be no group relationship of a particular kind controlling for a specific kind of personal characteristic, but there would be a uniform difference between individuals varying in terms of the given personal characteristic irrespective of the group characteristic. The II cell refers to a situation where there would be a uniform group relationship controlling for a specific personal characteristic, but there would be no difference among members of various groups divergent in terms of this personal characteristic. The III cell would describe a situation where both a uniform group (between groups) difference and a uniform personal (within groups) difference were observed when the other factor was held constant. It appears, then, that a uniform personal difference and a uniform group difference may vary independently of the other.

As noted before, Types 0, I, II, and III are incompatible with Types IV-IX. A distinctive feature of the latter Types, in contrast to the others, is the fact that they always involve both a conditional personal and a conditional group difference, and this means that neither of these conditional types of differences can vary independently of the other. Beyond this the Type IV-IX classifications are somewhat heterogeneous. The IV classification can be considered closely akin to the Type III. For both classifications there is a single-direction group difference as well as a single-direction difference among individuals when the other relevant level is held constant. What distinguishes the Type III and Type IV is the point that in the former type the within-groups and the between-groups differences are orthogonal, whereas in the Type IV each is a direct function of the other.

Type IV is distinguished from Types V-IX by the point that each of the latter types describe situations where either the between-groups difference, the within-groups difference, or both, are only observed where particular combinations of the group and personal variable occur. In the IV Type there is variation in degree on both the between-groups and the within-groups differences, but not in sheer incidence. Type VII stands for a situation where both between-groups and within-groups differences are observed only under particular combinations of the group and personal characteristics. Types V and VI represent a cross between Types IV and VII. The former describes the situation where the group difference varies in degree and the personal difference occurs only in the combination of the group and personal factors or characteristics. The latter describes the situation where the personal difference varies in degree and the group difference occurs only in the presence of both group and personal characteristics.

Types VIII and IX are distinguished by the fact that the direction of the personal difference, or both the personal and the group difference, varies with the other level factor. In the case of Type VIII only the personal difference varies in direction, while in the Type IX both do so.

The above description of the types of results obtained from the simultaneous analysis of both an environmental and an individual variable indicates that there are a variety of possible results of such analysis that warrant the term "contextual", "group" or "social environmental" effect, and that the same applies to the term "individual"

or "personal" effect. In the present research report we shall apply techniques that serve to operationally distinguish between these various theoretical possibilities.

While the basic framework for the analysis of social environmental effects involves the considerations described above, this form of analysis was raised to a new and higher level of validity as a result of Peter M. Blau's work involving the concept of "structural effects." (3, 4) In the previous description of the methodological rationale for environmental or contextual analysis no specification regarding the correspondence or lack of correspondence between the group or context variable and the personal characteristic was made. The concept of "structural effects" directs attention to the possibility that a difference between groups resulting from a contextual analysis may in fact be due to the individual level difference corresponding to the group variable. The method of "structural effects" involves controlling for this possibility by holding constant the individual factor that corresponds directly to the group variable to which a contextual effect is imputed. Thus "structural effects" analysis is the special case of "contextual effects" analysis where the group variable and the personal characteristic under simultaneous analysis refer to the same factor. Furthermore, the results of this type of contextual analysis insure a more valid imputation of a social environmental effect. The classification of the results of a contextual analysis applies equally to a structural effects analysis, the only difference being in the correspondence between the personal and group variables.

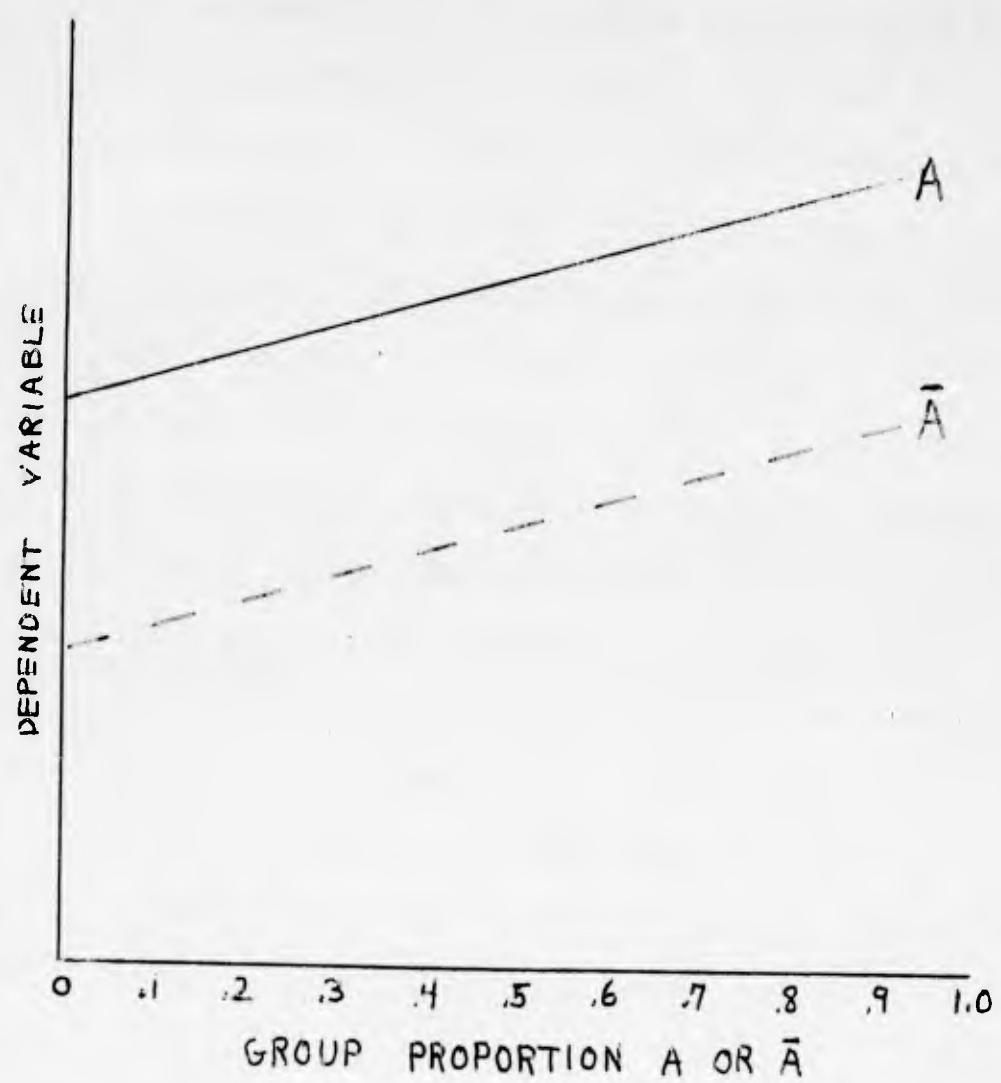
The work of James A. Davis has served to translate the previously described logic of contextual and structural effects analysis into a tool for systematic research concerned with the impact of social environments upon their constituent members. (5)

"Compositional effects" analysis, the technique which Davis has developed and employed, represents a translation of structural effects analysis into a form amenable to attack in terms of regression and covariance analysis. It accomplishes this by: (1) measuring group level independent variables and dependent variables in quantitative terms, (2) classifying persons within each of the groups under investigation into separate categories on the basis of their personal characteristics corresponding to the respective group level independent variables, (3) performing separate regressions for each of the individual or personal level categories, and (4) comparing the results of these regressions. The underlying principles involved are described graphically by the following geometric representation of one of the forms a compositional analysis may take for a hypothetical group variable, measured as a per cent ( $P$ ) and the corresponding personal attributes ( $A$  and  $\bar{A}$ ).

The form shown is classifiable as Type III according to the typology described since the between-groups differences are the same for each category of individuals and the within-group differences are the same for each level of the group variable. Although the general method is not limited to the case of linear regressions in the between-groups relationships, the various forms of compositional analysis that

CHART II

GRAPH OF HYPOTHETICAL COMPOSITIONAL EFFECT

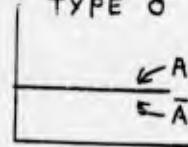
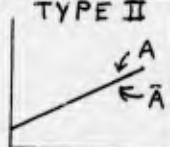
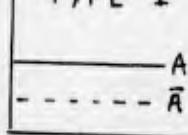
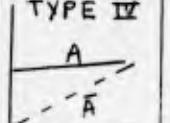
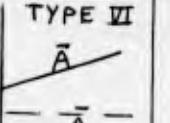
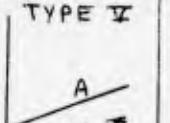
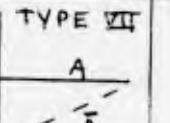
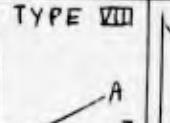


will be described here and employed in this study will be of the linear type. A set of representations of some other linear forms corresponding to the type described earlier are shown in Chart III. Note that the Type III form already cited is designated as III A and distinguished from other sub-types. These sub-types differ in two respects. First, in the case of types A and B the between groups differences increase with greater proportions of the given group compositional factor, while in the case of types C and D these differences decrease. More significantly, these sub-types differ in that for III A and III C the group level and the individual level relationships are in the same direction, while for III B and III D they are in opposite directions. This distinction is noted because of the special interest attaching to III B and III D as proof of the reality of group effect, over and above the effects of individual characteristics. This sort of situation with group level and individual level effects moving in opposite directions can occur in other types as well, but these possibilities are not illustrated for purposes of convenience in presentation. In general, the particular combinations of regressions schematized here as corresponding to the various types are illustrative rather than exhaustive.

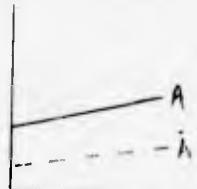
By allowing for the translation of structural effects data into the form of two or more regressions, compositional effects analysis not only enables the precise measurement of differences in behavior flowing from social environments but also offers a systematic procedure for distinguishing among various kinds of environmental effects. This

CHART III

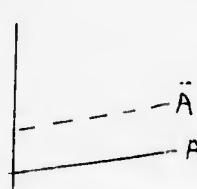
SCHEMATIC PRESENTATION OF COMPOSITIONAL EFFECTS RESULTS

		GROUP (BETWEEN GROUPS)				
Personal (within groups)				Conditional Group Relation- ship, controlling individuals		
		1. No group relationship Controlling for individual differences.	2. Uniform group relationship Controlling for indiv. dif.	3. A Grp. rel. one direction Varies in degree.	3. B One di- rection varies in grp. rel. for only some in- dividuals	3. C Grp. rel. varies in direction for dif. indivs.
	1. No individual relationship, Controlling grp. differences.	TYPE O 	TYPE II 			
	2. Uniform indiv. relationship, Controlling grp. differences.	TYPE I 	TYPE III (See below)			
3. Conditional Indiv. Relats. Cont. Grp. Diff.	A. Indiv. rels. in one direction. Varies in degree.			TYPE IV 	TYPE VI 	
	B. Indiv. rels. in one direction, in some but not all groups.			TYPE V 	TYPE VII 	
	C. Diff. direction of indiv. relats. depend on group contexts.				TYPE VIII 	TYPE IX 

TYPE III



A



B



C



D

is done by means of testing and comparing regression coefficients and regression lines, according to standard statistical procedures. (16)

The criteria for distinguishing the various types of results obtained from the compositional analysis are as follows.

Type 0

- (1) The slopes of regression lines are not significantly different from zero.
- (2) The lines are not significantly different from each other.

Type I

- (1) The slopes are not significantly different from zero.
- (2) The slopes are not significantly different from each other.
- (3) The lines are different from each other.

Type II

- (1) The slopes are significantly different from zero.
- (2) The slopes are not significantly different from each other.
- (3) The lines are not significantly different from each other.

Type III

- (1) The slopes are significantly different from zero.
- (2) The slopes are not significantly different from each other.
- (3) The lines are significantly different from each other.

Type IV

- (1) The slopes are significantly different from zero.
- (2) The slopes are significantly different from each other.
- (3) The lines are significantly different from each other across the full range of the independent variable.

Type V

- (1) The slopes are significantly different from zero.
- (2) The slopes are significantly different from each other.
- (3) The lines are significantly different from each other only over a part of the observed range of the independent variable.
- (4) The lines may intersect or cross within the observed range of the independent variable, but if they cross, the difference between the lines is significant in only one direction.

empirical correlations with relevant bodies of theory but the particular theory called for will vary with the specific group and individual variables under consideration. Another point well worth emphasizing is that the distinctions between individual and group effects in any particular analysis is not the same as the distinction between the social and the non-social generally. This follows first from the fact that at any given time people are usually members of more than one group and while any behavior may be unaffected by one specific social environment, it may be very definitely affected by other group memberships. Without performing the suggested kinds of analysis for all relevant environments it would certainly not be justified to conclude that a person's behavior was individual in the sense of being non-social. But in addition to this, people are affected by their past as well as their present social environments in the sense that social behavior is in part a function of socialization processes. The study of the effects of social structure due to socialization calls for the application of methods similar to those utilized here to data on changes over time, and hence in cross-sectional research such as reported in this study even where they may be due to the social environment under study such effects remain largely undetected, and are classified as "individual" according to the present method.

APPENDIX B (1) THE SAMPLE

Unit	Primary Mission	Activity	Accessibility
Meade 1st Bn. 3d Cav Regt	Combat	Permanent	Accessible
Meade 2nd Bn. 3d Cav Regt	Combat	Permanent	Accessible
Holabird 1st Stud. Intelligence	Support	Training	Accessible
Holabird 2nd Stud. Intelligence	Support	Training	Accessible
Belvoir G Co Stud. Eng. School	Support	Training	Accessible
Belvoir E Co Stud. Eng. School	Support	Training	Accessible
Belvoir 588th Eng. Co. 79th Eng.	Support	Permanent	Accessible
Belvoir 178th Fld. Mnt 79th Eng.	Support	Permanent	Accessible
Belvoir 87th Eng Bn. 79th Eng.	Support	Permanent	Accessible
Belvoir 100 Flo Brdg 79th Eng.	Support	Permanent	Accessible
Belvoir 497 Port Const 79th Eng.	Support	Permanent	Accessible
Dix A Co. 4th Trng. Regt.	Basic	Training	Inaccessible
Dix D Co. 4th Trng. Regt.	Basic	Training	Inaccessible
Dix G Co. 4th Trng. Regt.	Basic	Training	Inaccessible
Bragg Pre-Jump 82nd Div.	Combat	Training	Inaccessible
Bragg 503rd Inf. 1st Bat. Grp.	Combat	Permanent	Inaccessible
Bragg HQS Co 325th Inf. 2nd Grp.	Combat	Permanent	Inaccessible
Bragg Jump School 82nd Div.	Combat	Training	Inaccessible
Eustis 1st Student Co.	Support	Training	Inaccessible
Eustis 3rd Student Co.	Support	Training	Inaccessible
Lee 581st QM Co.	Support	Permanent	Inaccessible
Lee 148th QM Co.	Support	Permanent	Inaccessible
Lee QM School	Support	Training	Inaccessible

APPENDIX B (2) THE SAMPLE

Post	Unit	Total Strength	Available for Analysis
Ft. Meade	1st Bn., 3d Cavalry Regiment	N/Available	187
	2nd Bn., 3d Cavalry Regiment		192
Ft. Holabird	1st Stu. Bn., Army Intelligence School	190	178
	2nd Stu. Bn., Army Intelligence School		82
Ft. Belvoir	G Co., Student Battalion	125	82
	E Co., Student Battalion	112	104
	497th Portable Construction Co.	110	78
	87th Engineer Bn., 79th Eng. Grp (A, B and C Companies)	400	208
	588th Eng. Con. Bn., 79th Eng. Grp.	340	200
	178th Field Eng. Maint. Co., 79th Grp.	105	79
	100th Float Bridge Co. 79th Grp.	100	46
Ft. Dix	A Co. (RFA) - 1st week training	225	126
	D Co. - 5th week training	210	198
	G. Co. - 8th week training	210	170
Ft. Bragg	Pre-Jumpers, 82nd Division	N/Available	80
	503rd Inf. 1st Battle Grp., 82nd Div.	N/Available	210
	Jump School, 82nd Division	N/Available	149
	Hqs. & Hqs., 325th Inf. 2nd Bat. Grp.	N/Available	105
Ft. Eustis	1st Student Company	N/Available	75
	3rd Student Company	N/Available	154
Ft. Lee	581st QM Co., (Parts)	76 <sup>a</sup>	56
	148th QM Co., R&D (Graves Registration)	71 <sup>a</sup>	22
	QM School	N/Available	104
Total		2885	

<sup>a</sup>Actual Strength; other figures in same column are approximate.

APPENDIX C THE QUESTIONNAIRE

1. What is your age? \_\_\_\_\_

2. Where did you live before you entered the service? "X" the box that applies.

1 Farm or in country

2 Small city or town (under 25,000)

3 Medium size city (25,000-100,000)

4 Large city (over 100,000)

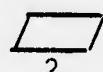
5 Suburb of a large city

3. What section of the country had you lived in before you entered the service? (You may check more than one).



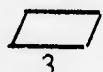
1

Northeast-Middle Atlantic Section (Maine, Vermont, New York, New Jersey, New Hampshire, Massachusetts, Connecticut, Rhode Island, Pennsylvania, Maryland, Delaware, Washington, D.C., West Virginia).



2

East North Central-Midwest Section (Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Kansas, Missouri).



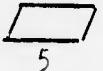
3

Southeastern-South Central Section (Kentucky, Arkansas, Mississippi, Alabama, Georgia, North Carolina, South Carolina, Virginia, Texas, Louisiana, Florida, Tennessee).



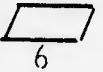
4

West North Central-Central Section (Iowa, Nebraska, Wyoming, South Dakota, North Dakota, Oklahoma, Montana).



5

North Pacific-Mountain, Southwest Section (New Mexico, Utah, Nevada, California, Arizona, Washington, Oregon, Idaho).



6

Alaska, Hawaii, Puerto Rico, Mexico



7

Other (Please specify) \_\_\_\_\_

4. What is your marital status?

1 Single

2 Married - no children

3 Married - with children

4 Separated - Divorced

5 Widowed

5. How much formal education did you have before entering the service?

1 Grade school only

2 High school

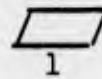
3 High school graduate

4 Attended college - no degree

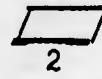
5 College graduate

6 Graduate work or professional school

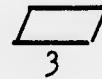
6. How much formal education did your father have? (If this schooling took place outside of the U.S., try to estimate).



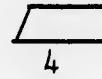
No formal schooling



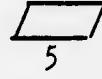
Some elementary schooling



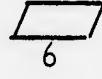
Some high school



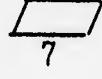
High school graduate



Some college



College graduate



Graduate or professional school

7

7. Place an "X" beside the job which your father held, your own job before you entered the service, and the job you would like to get when you get out.

	(1) Your Father's Job	(2) Your job before you entered the Army	(3) The job you want after you leave the Army
Unemployed -----	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
I am not sure -----	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
<u>Professional</u> : doctor, lawyer, dentist, clergy, editor, Army officer.	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
<u>Manager-Proprietor</u> : pilot, foreman, credit manager, store buyer, store owner, factory owner or manager.	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
<u>Clerical</u> : bank teller, book- keeper, cashier.	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5
<u>Saleswork</u> : auto sales, insurance sales, store clerk.	<input type="checkbox"/> 6	<input type="checkbox"/> 6	<input type="checkbox"/> 6
<u>Craftsman</u> : painter, welder, uphol- sterer, machinest, cabinet maker.	<input type="checkbox"/> 7	<input type="checkbox"/> 7	<input type="checkbox"/> 7
<u>Operative</u> : cab-bus driver, route men, building trades, semi-skilled factory work.	<input type="checkbox"/> 8	<input type="checkbox"/> 8	<input type="checkbox"/> 8
<u>Service</u> : waiters, barbers, bartend- ers, short order cooks.	<input type="checkbox"/> 9	<input type="checkbox"/> 9	<input type="checkbox"/> 9
<u>Farmer-Farm Manager</u> -----	<input type="checkbox"/> 10	<input type="checkbox"/> 10	<input type="checkbox"/> 10
<u>Farm Laborer</u> -----	<input type="checkbox"/> 11	<input type="checkbox"/> 11	<input type="checkbox"/> 11
<u>Laborer</u> : road work, teamster, miner, gardener.	<input type="checkbox"/> 12	<input type="checkbox"/> 12	<input type="checkbox"/> 12
<u>Student</u> -----	<input type="checkbox"/> 13	<input type="checkbox"/> 13	<input type="checkbox"/> 13

8. What is your present rank? (Circle one)

E-1      E-2      E-3      E-4      E-5      E-6      E-7      E-8      E-9  
1            2            3            4            5            6            7            8            9

SP-4      SP-5      SP-6      SP-7      SP-8      SP-9  
x-4        x-5        x-6        x-7        x-8        x-9

9. What is your MOS? \_\_\_\_\_ (Military Occupation Speciality).

10. When did you first enter the Army? \_\_\_\_\_  
month \_\_\_\_\_ year \_\_\_\_\_

11. In your first tour of duty were you?

1 Drafted

2 Enlisted

12. Are you a combat veteran of any of the following? (Check more than one if appropriate).

1 World War I

2 World War II

3 Korea

13. When did you start your present enlistment? \_\_\_\_\_

14. At the time you first entered the service how did you feel about the Army? (check one)

 1

I felt that the Army would be a good experience and that it would help me in many ways.

 2

I was neither pleased or sorry at the prospect of going into the Army.

 3

I regretted having to go into the Army and felt that it would be a waste of time.

15. How do you feel about the Army now?

 1

For the most part I have enjoyed my stay in the Army and feel that it has helped me in many ways.

 2

It's been about 50-50: it has not particularly helped me or hindered me.

 3

With few exceptions I feel that it has been a waste of time.

16. How important to our nation's security is your present military job?

 1

For the most part I feel that my job is essential to the nation's security.

 2

I feel that it is somewhat important but not essential.

 3

I feel that it is not important to our nation's security.

17. What are your future plans? (check one)

 1

I plan on remaining in the service and making the Army a career.

 2

It depends on a number of things but I might make the Army a career.

 3

I doubt very much if I will make the Army a career.

 4

I am sure that I will not make the Army a career.

18. Regardless of how you now feel, have you ever (in the past) seriously considered making the Army a career?

 1

Yes, I have considered making the Army a career.

 2

No, I have not considered making the Army a career.

19. Even though you may not have talked it over with them, how do you think the following people would feel if you were to make the Army a career? (Place an "X" for each person).

	Approves	Don't Care	Disapproves	I Don't Know	Other
My father	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
My mother	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
My wife	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
My wife to be	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

20. Where do you live?

1 On the post in barracks

2 On the post in family quarters

3 Off the post

21. If you eat 3 meals a day, you eat 21 meals a week. On the average, how many meals do you eat at each of the following?

	18-21 a week	15-18 a week	10-14 a week	5-9 a week	1-4 a week	A few times a month	Almost never
Mess Hall	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Service Club	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
PX	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
NCO Club	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Town Restaurant	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
At Home	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Other (Please specify _____)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

22. Before you entered the service what did you think Army food would be like?

1 I expected it to be of good quality and well prepared.

2 I expected it to be of good quality but poorly prepared.

3 I expected it to be of poor quality but well prepared.

4 I expected it to be of poor quality and poorly prepared.

5 I really hadn't given the food much thought.

23. Compared to what you expected how did you actually find the food in basic training?

1 It was much better than I expected it to be.

2 It was somewhat better than I had expected.

3 It was about the same as I had expected.

4 It was a little worse than I had expected.

5 It was much worse than I had expected.

24. When you were in basic training what did you expect about the food served in a regular company mess?

- 1 I expected the food in a regular company mess to be much better than that served in basic.
- 2 I expected the food in the company mess to be a little better than that served in basic.
- 3 I expected the food in the company mess to be about the same as that served in basic.
- 4 I expected the food in the company mess to be a little worse than that served in basic.
- 5 I expected the food in the company mess to be much worse than that served in basic.

25. Now that you are in a regular outfit, how did the food turn out? (Basic trainees disregard).

- 1 It is much better than I expected it to be.
- 2 It is a little better than I had expected it to be.
- 3 It is about the same as I had expected it to be.
- 4 It is a little worse than I had expected it to be.
- 5 It is much worse than I thought it would be.

26. How much food do you get to eat at present?

1 Too much to eat.

2 Just about the right amount.

3 Sometimes too much and sometimes too little.

4 A little less than I would like.

5 Not enough to eat.

27. How about the variety of foods served?

1 Too many different kinds of food

2 Just about right

3 Not enough variety: monotonous

28. How about the way the food is served in the mess hall?

1 The food is served in a pleasant manner.

2 The service is as good as can be expected.

3 The food is served poorly.

29. Is your mess hall a pleasant place to eat?

1 It is a very pleasant place to eat in

2 It is as pleasant as you can expect

It is unpleasant to eat in the mess hall

30. Compared to other mess halls you have eaten in how would you rate your present mess?

1 It is better than any other mess hall

2 It is better than most, but it is not the best

3 It is just about average

4 It is worse than most

31. How clean is your mess hall?

1 It is usually very clean

2 It is clean some of the time

3 It is often not very clean

32. How do you think the cooks feel about cooking?

1 The cooks here try their best to cook meals that the men will enjoy

2 The cooks just follow the rules and don't go out of their way

3 The cooks don't care how the men feel about the food

4 The cooks go out of their way to make the food as bad as they can

5 Don't know

33. How about the training the cooks have?

1 The cooks here could cook in the best restaurants

2 They are good but they couldn't compare with civilian cooks

3 They try to cook but they really don't know how

4 They don't know how to cook and they don't care to learn

5 Don't know

34. Here are a number of statements about how the Army chooses men to be cooks. Check whether you agree or disagree with each of them.

<u>Agree</u>	<u>Don't Know</u>	<u>Disagree</u>
--------------	-----------------------	-----------------

The Army takes only men who volunteer for the job.

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
----------------------------	----------------------------	----------------------------

The Army prefers to take men who have had some experience.

<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
----------------------------	----------------------------	----------------------------

If a man can't be good soldier they make him a cook.

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
----------------------------	----------------------------	----------------------------

When you get too old to make a good line soldier the Army makes you a cook.

<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
----------------------------	----------------------------	----------------------------

35. How do you think the Army feels about the feeding of enlisted men?

1 They want the men to have food that is both good for them and good tasting.

2 They want the men to have food that is good for them but they are not too concerned with how it tastes.

3 They want the men to get enough food in their stomachs to do the job.

36. How often do you buy any of the following from coin vending machines-slot machines on the post? (Answer one each row)

	Every day	3 to 5 days a week	once or twice a week	few times each month	never
Ice Cream-Candy	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Cookies	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Sandwiches	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Soft Drinks	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Coffee	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

37. Below are a number of statements about Army food and feeding. Read them over carefully and check where you either agree or disagree with the statement. (Answer one in each row).

	<u>Agree</u>	<u>Don't Know</u>	<u>Disagree</u>
If there were less emphasis on spit and polish and more on cooking the food would be better.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
You can't really blame the cook. He has to work with the food they give him.	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
The trouble is that the menu planners don't know the kinds of food a soldier needs.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
The other services probably get better food than the Army.	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
The cooks would do a better job if they did not have so many other duties.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
All things considered the food is probably as good as it could be.	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Army chow is something that soldiers will always gripe about.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
You can't expect it to be as good as the food you had at home.	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

38. In general how well do you think the Army is run?

- 1 It is run very well
- 2 It is run pretty well
- 3 It is not run so well
- 4 It is run very poorly
- 5 Undecided

39. In general, do you think you have gotten a square deal from the Army?

Yes, in most ways I have  
1

In some ways, yes, in other ways, no  
2

No, on the whole I have not  
3

40. How many of your present NCO's are the kinds of men that you would want to serve under in time of war?

All of them  
1

Most of them  
2

Half of them  
3

Not very many of them  
4

None of them  
5

Don't know  
6

41. Do you feel that promotions in the Army are handled fairly?

Almost always  
1

Most of the time  
2

About half of the time  
3

Not very often  
4

Almost never  
5

Don't know  
6

42. Has being in the Army helped or interfered with your plans for the future?

1 It has helped a great deal

2 It has helped a little

3 It has neither helped nor interfered

4 It has interfered a little

5 It has interfered a great deal

43. Under present circumstances do you think that you are serving the country best by being in the Army or not?

1 I can serve best by being in the Army

2 I can serve best as a civilian

3 Undecided

44. In general how would you say you feel most of the time, in good spirits or low spirits?

1 I am usually in good spirits

2 About half and half

3 I am usually in low spirits

45. In general what sort of physical condition would you say you are in at the present time?

1 Very good condition

2 Good condition

3 Fair condition

4 Poor condition

5 Very poor condition

46. How well do you like the men in your outfit? (check out).

1 Very much - they are the best bunch I have ever met.

2 A great deal - they are a fine bunch of men

3 Average - some are OK; others are no good

4 Below average - some are all right, but most are not very likeable

5 Much below average - they are the worst bunch you can get

47. In your opinion how are the NCO's selected in your outfit? Check whether you agree or disagree with the following statements.

The NCO's know their job and that's why they are promoted.

Agree    Don't  
Know    Disagree

1     2     3

Men are promoted mainly on the basis of length of time in the Army.

5     6     7

Men are promoted because they have pull with the offices and the senior non-coms.

1     2     3

They pick the toughest men to be non-coms despite their qualifications.

5     6     7

If you have any education at all, you never will be promoted.

1     2     3

48. About your job in the Army--If your outfit were to go into combat, how close to the real fighting would your job take you?

1 I would be in the very front lines in the firing lines

2 I would be just behind the firing lines

3 I would be a mile or so behind the lines

4 I would be behind the lines but in the combat zone

5 I would be far behind the lines in a support zone

6 Don't know

49. Suppose war were declared and your outfit were to be moved tomorrow into the combat zone, how well prepared through training are you for combat? (School troops disregard).

1 Very well trained and prepared

2 Fairly well prepared

3 Just about average

4 Poorly prepared

5 Very poorly prepared

HERE ARE SOME FOOD ITEMS THAT APPEAR IN THE ARMY FIELD RATIONS (C RATIONS OR ONE MAN MEALS). PUT AN "X" IN THE BOX WHICH SHOWS HOW YOU LIKE EACH DISH. IF YOU HAVE NEVER TASTED SOME OF THESE FIELD RATIONS, PLACE AN "X" IN THE NOT TRIED SQUARE AND THEN CHECK HOW YOU THINK YOU WOULD LIKE IT.

NOT TRIED 10	FOOD ITEM	LIKE			INDIFFERENT			DISLIKE			1
		9	8	7	6	5	4	3	2	1	
Not Tried	Boned chicken	Like Extremely	Like Very Much	Like Moderately	Like Slightly	Neither Like Nor Dislike	Dislike Slightly	Dislike Moderately	Dislike Very Much	Dislike Extremely	
Not Tried	Hamburger patties	Like Extremely	Like Very Much	Like Moderately	Like Slightly	Neither Like Nor Dislike	Dislike Slightly	Dislike Moderately	Dislike Very Much	Dislike Extremely	
Not Tried	Franks & beans	Like Extremely	Like Very Much	Like Moderately	Like Slightly	Neither Like Nor Dislike	Dislike Slightly	Dislike Moderately	Dislike Very Much	Dislike Extremely	
Not Tried	Tuna fish noodles & vegetables	Like Extremely	Like Very Much	Like Moderately	Like Slightly	Neither Like Nor Dislike	Dislike Slightly	Dislike Moderately	Dislike Very Much	Dislike Extremely	
Not Tried	Beef steak	Like Extremely	Like Very Much	Like Moderately	Like Slightly	Neither Like Nor Dislike	Dislike Slightly	Dislike Moderately	Dislike Very Much	Dislike Extremely	
Not Tried	Ham chunks	Like Extremely	Like Very Much	Like Moderately	Like Slightly	Neither Like Nor Dislike	Dislike Slightly	Dislike Moderately	Dislike Very Much	Dislike Extremely	
10		9	8	7	6	5	4	3	2	1	

HERE ARE SOME FOOD DISHES THAT ARE SERVED IN ARMY MESSES. PLACE AN "X" IN THE BOX THAT SHOW HOW MUCH YOU LIKE EACH FOOD DISH.

FOOD ITEM	LIKE				INDIF- FERENT				DISLIKE			
	9 Like Extremely	8 Like Very Much	7 Like Moder- ately	6 Like Slightly	5 Neither Like Nor Dislike	4 Dislike Slightly	3 Dislike Moder- ately	2 Dislike Very Much	1 Dislike Extremely			
Pot roast of beef												
Turkey a la king												
Fried fish												
Baked ham												
Breaded veal cutlets												
Beef stew												
Pork chops												
Roast pork												
Lamb roast												

APPENDIX D

THE SCALES

APPENDIX D (1)

Favorableness to the Army Scale

33. In general how well do you think the Army is run?

1. It is run very well
2. It is run pretty well
3. It is not run so well
4. It is run very poorly
5. Undecided

34. In general, do you think you have gotten a square deal from the Army?

1. Yes, in most ways I have
2. In some ways, yes, in other ways, no
3. No, on the whole I have not

36. Do you feel that promotions in the Army are handled fairly?

1. Almost always
2. Most of the time
3. About half of the time
4. Not very often
5. Almost never
6. Don't know

Rep.\* = .91      Green's Test of Significance: P < .01      N = 2678

\*Computed by Green's summary method. (9)

Distribution of Scores

<u>Score</u>	<u># of Respondents</u>
3	497
2	747
1	798
0	636
Total	2678

Scores 3 and 2 classified as favorable.  
Scores 1 and 0 classified as unfavorable.

APPENDIX D (2)

Esprit Scale

38. Under present circumstances do you think that you are serving the country best by being in the Army or not?

1. I can serve best by being in the Army
2. I can serve best as a civilian
3. Undecided

39. In general how would you say you feel most of the time, in good spirits or low spirits?

1. I am usually in good spirits
2. About half and half
3. I am usually in low spirits

69. How do you feel about the Army now?

1. For the most part I have enjoyed my stay in the Army and feel that it has helped me in many ways.
2. It's been about 50-50; it has not particularly helped me or hindered me.
3. With few exceptions I feel that it has been a waste of time.

Rep.\* = .91      Green's Test of Significance      P < .01      N = 2678

\*Computed by Green's summary method. (9)

Distribution of Scores

<u>Score</u>	<u># of Respondents</u>
3	577
2	585
1	512
0	1004
Total	2678

Scores 3 and 2 classified as high esprit.  
Scores 1 and 0 classified as low esprit.

APPENDIX D (3)

Attitude Toward NCO's Scale

35. How many of your present NCO's are the kinds of men that you would want to serve under in time of war?

1. All of them
2. Most of them
3. Half of them
4. Not very many of them
5. None of them
6. Don't know

42. (How NCO's are selected?) The NCO's know their job and that's why they are promoted.

1. Agree
2. Don't know
3. Disagree

44. (How NCO's are selected?) Men are promoted because they have pull with the officers and the senior non-coms.

1. Agree
2. Don't know
3. Disagree

Rep.\* = .93      Green's Test of Significance      P < .01      N = 2506

\*Computed by Green's summary method. (9)

Distribution of Scores

<u>Score</u>	<u># of Respondents</u>
3	618
2	766
1	660
0	462
Total	2506

Scores 3 and 2 classified as favorable.

Scores 1 and 0 classified as unfavorable.

APPENDIX D (4)

Army Food Scale

19. How do you think the Army feels about the feeding of enlisted men?

1. They want the men to have food that is both good for them and good tasting.
2. They want the men to have food that is good for them but they are not too concerned with how it tastes.
3. They want the men to get enough food in their stomachs to do the job.

30. All things considered the food is probably as good as it could be.

1. Agree
2. Don't know
3. Disagree

31. Army chow is something that soldiers will always gripe about.

1. Agree
2. Don't know
3. Disagree

Rep.\* = .91      Green's Test of Significance      P < .01      N = 2650

\*Computed by Green's summary method. (9)

Distribution of Scores

<u>Score</u>	<u># of Respondents</u>
3	463
2	919
1	899
0	369
Total	2650

Scores 3 and 2 classified as favorable.

Scores 1 and 0 classified as unfavorable.

APPENDIX D (5)

Attitude Toward Cooks Scale

14. How about the training the cooks have?

1. The cooks here could cook in the best restaurants
2. They are good but they couldn't compare with civilian cooks
3. They try to cook but they really don't know how
4. They don't know how to cook and they don't care to learn
5. Don't know

16. The Army prefers to take men (as cooks) who have had some experience.

1. Agree
2. Don't know
3. Disagree

17. If a man can't be a good soldier they make him a cook.

1. Agree
2. Don't know
3. Disagree

Rep.\* = .90      Green's Test of Significance      P < .01      N = 2364

\*Computed by Green's summary method. (9)

Distribution of Scores

<u>Score</u>	<u># of Respondents</u>
3	592
2	803
1	641
0	328
Total	2364

Scores 3 and 2 classified as favorable.  
Scores 1 and 0 classified as unfavorable.

APPENDIX D (6)

Mess Attitudes Scale

10. Is your mess hall a pleasant place to eat?

1. It is a very pleasant place to eat in
2. It is as pleasant as you can expect
3. It is unpleasant to eat in the mess hall

11. Compared to other mess halls you have eaten in, how would you rate your present mess?

1. It is better than any other mess hall
2. It is better than most, but it is not the best
3. It is just about average
4. It is worse than most

12. How clean is your mess hall?

1. It is usually very clean
2. It is clean some of the time
3. It is often not very clean

63. How about the way the food is served in the mess hall?

1. The food is served in a pleasant manner.
2. The service is as good as can be expected.
3. The food is served poorly.

Rep.\* = .95      Green's Test of Significance      P < .01      N = 2681

\*Computed by Green's summary method. (9)

Distribution of Scores

<u>Score</u>	<u># of Respondents</u>
4	365
3	742
2	790
1	501
0	283
Total	2681

Scores 4 and 3 classified as favorable.  
Scores 2, 1 and 0 classified as unfavorable.

APPENDIX E  
REGRESSION AND COVARIANCE ANALYSIS

Independent Variable	F Ratios for the difference between slopes. <sup>a</sup>			F Ratios for the difference between lines. <sup>b</sup>			Regions of difference between lines. <sup>c</sup>		
	Ham	Turkey	Fish	Ham	Turkey	Fish	Ham	Turkey	Fish
Enlistment Status % Enlistee	.85	.70	.16	.93	.21	.12			
Rank % NCO	.88	.10	.42				d	d	<.12
Career Plans % Army Career	.60	.06	1.31	10.95	8.26	6.21			
Army Favorableness % Favorable	2.63	5.27	1.27				<.48	<.45	<.48
Esprit % High Esprit	4.66	.38	3.43				<.51		<.50
Attitude Toward NCO's % Favorable	1.14	1.54	.90	16.59	23.32	17.48			
Length of Service % After 1958	9.77	1.00	1.03		1.03	9.90	<.57		
Food Attitudes % Military	4.45	1.00	1.29		11.31	15.04	<.57		
Mess Attitudes % Favorable	.39	.04	1.14	10.04	13.56	14.68			
Attitude Toward Cooks % Favorable	.04	1.19	2.03	10.51	13.08	22.08			

<sup>a</sup>Based on 1 and 40 degrees of freedom, except for Rank which is based on 1 and 29 degrees of freedom.

<sup>b</sup>Based on 1 and 41 degrees of freedom.

<sup>c</sup>These are bounding values of the independent variable defining regions of difference between regression lines, appropriate where these lines are not parallel. They are based upon 95% confidence intervals.

<sup>d</sup>No region statistically significant.

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